Share Traders Guide

Khashayar Naimi

Content

Stock trader----------1

Stock exchange----------8

Stock valuation----------16

Spot market----------24

Primary market----------25

Bond ----------27

Over-the-counter----------41

Short ----------44

Security ----------60

Derivative ----------71

Open outcry----------93

Closed-end fund----------96

Secondary market----------101

Dividend ----------103

Dark pool----------111

Unit trust----------119

Mutual fund----------124

Stock traders

A **stock trader** or **equity trader** or **share trader** is a person or company involved in trading equity securities. Stock traders may be an agent, hedger, arbitrageur, speculator, stockbroker. Such **equity trading**in large publicly traded companies may be through one of the major stock exchanges, such as the New York Stock Exchange or the London Stock Exchange, which serve as managed auctions for stock trades. Stock shares in smaller public companies are bought and sold in over-the-counter (OTC) markets.

Equity trading can be performed by the owner of the shares, or by an agent authorized to buy and sell on behalf of the share's owner. Proprietary trading is buying and selling for the trader's own profit or loss. In this case, the principal is the owner of the shares. **Agency trading** is buying and selling by an agent, usually a stockbroker, on behalf of a client. Agents are paid a commission for performing the trade.

Major stock exchanges have market makers who help limit price variation (volatility) by buying and selling a particular company's shares on their own behalf and also on behalf of other clients.

Stock traders advise shareholders and help manage portfolios. Traders engage in buying and selling bonds, stocks, futures and shares in hedge funds. A stock trader also conducts extensive research and observation of how financial markets perform. This is accomplished through economic and microeconomic study; consequently, more advanced stock traders will delve into macroeconomics and industry specific technical analysis to track asset or corporate performance. Other duties of a stock trader include comparison of financial analysis to current and future regulation of his or her occupation.

Professional stock traders who work for a financial company, are required to complete an internship of up to four months before becoming established in their career field. In the United States, for example, internship is followed up by taking and passing a Financial Industry Regulatory Authority-administered Series 63 or 65 exam. Stock traders who pass demonstrate familiarity with U.S. Securities and Exchange Commission (SEC) compliant practices and regulation. Stock traders with experience usually obtain a four-year degree in a financial, accounting or economics field after licensure. Supervisory positions as a trader may usually require an MBA for advanced stock market analysis.

The U.S. Bureau of Labor Statistics (BLS) reported that growth for stock and commodities traders was forecast to be greater than 21% between 2006 and 2016. In

that period, stock traders would benefit from trends driven by pensions of baby boomers and their decreased reliance on Social Security. U.S. Treasury bonds would also be traded on a more fluctuating basis. Stock traders just entering the field suffer since few entry-level positions exist. While entry into this career field is very competitive, increased ownership of stocks and mutual funds drive substantial career growth of traders. Banks were also offering more opportunities for people of average means to invest and speculate in stocks. The BLS reported that stock traders had median annual incomes of $68,500. Experienced traders of stocks and mutual funds have the potential to earn more than $145,600 annually.

Contrary to a stockbroker, a professional who arranges transactions between a buyer and a seller, and gets a guaranteed commission for every deal executed, a professional trader may have a steep learning curve and his/her ultra-competitive performance based career may be cut short, especially during generalized stock market crashes. Stock market trading operations have a considerably high level of risk, uncertainty and complexity, especially for unwise and inexperienced stock traders/investors seeking an easy way to make money quickly. In addition, trading activities are not free. Stock speculators/investors face several costs such as commissions, taxes and fees to be paid for the brokerage and other services, like the buying/selling orders placed at the stock exchange. Depending on the nature of each national or state legislation involved, a large array of fiscal obligations must be respected, and taxes are charged by jurisdictions over those transactions, dividends and capital gains that fall within their scope. However, these fiscal obligations will vary from jurisdiction to jurisdiction. Among other reasons, there could be some instances where taxation is already incorporated into the stock price through the differing legislation that companies have to comply with in their respective jurisdictions; or that tax free stock market operations are useful to boost economic growth. Beyond these costs are the opportunity costs of money and time, currency risk, financial risk, and Internet, data and news agency services and electricity consumption expenses—all of which must be accounted for.

Jerome Kerviel (Société Générale) and Kweku Adoboli (UBS), two rogue traders, worked in the same type of position, the Delta One desk - a table where derivatives are traded, and not single stocks or bonds. These types of operations are relatively simple and often reserved for novice traders who also specialize in exchange-traded funds (ETFs), financial products that mimic the performance of an index (i.e. either upward or downward). As they are easy to use, they facilitate portfolio diversification through the acquisition of contracts backed by a stock index or industry (e.g. commodities). The two traders were very familiar to control procedures. They worked in the back office, the administrative body of the

bank that controls the regularity of operations, before moving to trading. According to the report of the Inspector General of Societe Generale, in 2005 and 2006 Kerviel "led" by taking 100 to 150 million-euro positions on the shares of Solarworld AG listed in Germany. Moreover, the "unauthorized trading" of Kweku Adoboli, similar to Kerviel, did not date back a long way. Adoboli had executed operations since October 2008 - his failure and subsequent arrest occurred in 2011.

Stock speculators and investors usually need a stock broker such as a bank or a brokerage firm to access the stock market. Since the advent of Internet banking, an Internet connection is commonly used to manage positions. Using the Internet, specialized software, and a personal computer, stock speculators/investors make use of technical and fundamental analysis to help them in making decisions. They may use several information resources, some of which are strictly technical. Using the pivot points calculated from a previous day's trading, they attempt to predict the buy and sell points of the current day's trading session. These points give a cue to speculators, as to where prices will head for the day, prompting each speculator where to enter his trade, and where to exit. An added tool for the stock picker is the use of "stock screens". Stock screens allow the user to input specific parameters, based on technical and/or fundamental conditions, that he or she deems desirable. Primary benefit associated with stock screens is its ability to return a small group of stocks for further analysis, among tens of thousands, that fit the requirements requested. There is criticism on the validity of using these technical indicators in analysis, and many professional stock speculators do not use them. Many full-time stock speculators and stock investors, as well as most other people in finance, traditionally have a formal education and training in fields such as economics, finance, mathematics and computer science, which may be particularly relevant to this occupation – since stock trading is not an exact science, stock prices have in general a random or chaotic behaviour and there is no proven technique for trading stocks profitably, the degree of knowledge in those fields is ultimately neglectable.

Although many companies offer courses in stock picking, and numerous experts report success through technical analysis and fundamental analysis, many economists and academics state that because of the efficient-market hypothesis (EMH) it is unlikely that any amount of analysis can help an investor make any gains above the stock market itself. In the distribution of investors, many academics believe that the richest are simply outliers in such a distribution (i.e. in a game of chance, they have flipped heads twenty times in a row). When money is put into the stock market, it is done with the aim of generating a return on the capital invested. Many investors try not only to make a profitable return, but also to outperform, or beat, the market.

However, market efficiency - championed in the EMH formulated by Eugene Fama in 1970, suggests that at any given time, prices fully reflect all available information on a particular stock and/or market.

Thus, according to the EMH, no investor has an advantage in predicting a return on a stock price because no one has access to information not already available to everyone else. In efficient markets, prices become not predictable but random, so no investment pattern can be discerned. A planned approach to investment, therefore, cannot be successful. This "random walk" of prices, commonly spoken about in the EMH school of thought, results in the failure of any investment strategy that aims to beat the market consistently. In fact, the EMH suggests that given the transaction costs involved in portfolio management, it would be more profitable for an investor to put his or her money into an index fund.

In 1963 Benoit Mandelbrot analyzed the variations of cotton prices on a time series starting in 1900. There were two important findings. First, price movements had very little to do with a normal distribution in which the bulk of the observations lies close to the mean (68% of the data are within one standard deviation). Instead, the data showed a great frequency of extreme variations. Second, price variations followed patterns that were indifferent to scale: the curve described by price changes for a single day was similar to a month’s curve. Surprisingly, these patterns of self-similarity were present during the entire period 1900-1960, a violent epoch that had seen a Great Depression and two world wars. Mandelbrot used his fractal theory to explain the presence of extreme events in Wall Street. In 2004 he published his book on the “misbehavior” of financial markets - The (Mis)behavior of Markets: A Fractal View of Risk, Ruin, and Reward. The basic idea that relates fractals to financial markets is that the probability of experiencing extreme fluctuations (like the ones triggered by herd behavior) is greater than what conventional wisdom wants us to believe. This of course delivers a more accurate vision of risk in the world of finance. The central objective in financial markets is to maximize income for a given level of risk. Standard models for this are based on the premise that the probability of extreme variations of asset prices is very low.

These models rely on the assumption that asset price fluctuations are the result of a well-behaved random or stochastic process. This is why mainstream models (such as the famous Black-Scholes model) use normal probabilistic distributions to describe price movements. For all practical purposes, extreme variations can be ignored. Mandelbrot thought this was an awful way to look at financial markets. For him, the distribution of price movements is not normal and has the property of kurtosis, where fat tails abound. This is a more faithful representation of financial markets: the movements of the Dow index for the past hundred years reveals a troubling frequency of violent movements. Still, conventional models used by the time of the 2008

financial crisis ruled out these extreme variations and considered they can only happen every 10,000 years. An obvious conclusion from Mandelbrot's work is that greater regulation in financial markets is indispensable. Other contributions of his work for the study of stock market behaviour are the creation of new approaches to evaluate risk and avoid unanticipated financial collapses.

Outside of academia, the controversy surrounding market timing is primarily focused on day trading conducted by individual investors and the mutual fund trading scandals perpetrated by institutional investors in 2003. Media coverage of these issues has been so prevalent that many investors now dismiss market timing as a credible investment strategy. Unexposed insider trading, accounting fraud, embezzlement and pump and dump strategies are factors that hamper an efficient, rational, fair and transparent investing, because they may create fictitious company's financial statements and data, leading to inconsistent stock prices.

Throughout the stock markets history, there have been dozens of scandals involving listed companies, stock investing methods and brokerage. A classical case related to insider trading of listed companies involved Raj Rajaratnam and its hedge fund management firm, the Galleon Group. On Friday October 16, 2009, he was arrested by the FBI and accused of conspiring with others in insider trading in several publicly traded companies. U.S. Attorney Preet Bharara put the total profits in the scheme at over $60 million, telling a news conference it was the largest hedge fund insider trading case in United States history. A well publicized accounting fraud of a listed company involved Satyam. On January 7, 2009, its Chairman Raju resigned after publicly announcing his involvement in a massive accounting fraud. Ramalinga Raju was sent to the Hyderabad prison along with his brother and former board member Rama Raju, and the former CFO Vadlamani Srinivas. In Italy, Parmalat's Calisto Tanzi was charged with financial fraud and money laundering in 2008. Italians were shocked that such a vast and established empire could crumble so quickly. When the scandal was made known, the share price of Parmalat in the Milan Stock Exchange tumbled. Parmalat had sold itself credit-linked notes, in effect placing a bet on its own credit worthiness in order to conjure up an asset out of thin air. After his arrest, Tanzi reportedly admitted during questioning at Milan's San Vittore prison, that he diverted funds from Parmalat into Parmatour and elsewhere. The family football and tourism enterprises were financial disasters; as well as Tanzi's attempt to rival Berlusconi by buying Odeon TV, only to sell it at a loss of about €45 million. Tanzi was sentenced to 10 years in prison for fraud relating to the collapse of the dairy group. The other seven defendants, including executives and bankers, were acquitted. Another eight defendants settled out of court in September 2008.

Day trading sits at the extreme end of the investing spectrum from conventional buy-and-hold wisdom. It is the ultimate market-timing strategy. While all the attention that

day trading attracts seems to suggest that the theory is sound, critics argue that, if that were so, at least one famous money manager would have mastered the system and claimed the title of "the Warren Buffett of day trading". The long list of successful investors that have become legends in their own time does not include a single individual that built his or her reputation by day trading.

Even Michael Steinhardt, who made his fortune trading in time horizons ranging from 30 minutes to 30 days, claimed to take a long-term perspective on his investment decisions. From an economic perspective, many professional money managers and financial advisors shy away from day trading, arguing that the reward simply does not justify the risk. Attempting to make a profit is the reason investors invest, and buy low and sell high is the general goal of most investors (although short-selling and arbitrage take a different approach, the success or failure of these strategies still depends on timing).

The problems with mutual fund trading that cast market timing in a negative light occurred because the prospectuses written by the mutual fund companies strictly forbid short-term trading. Despite this prohibition, special clients were allowed to do it anyway. So, the problem was not with the trading strategy but rather with the unethical and unfair implementation of that strategy, which permitted some investors to engage in it while excluding others. All of the world's greatest investors rely, to some extent, on market timing for their success. Whether they base their buy-sell decisions on fundamental analysis of the markets, technical analysis of individual companies, personal intuition, or all of the above, the ultimate reason for their success involves making the right trades at the right time. In most cases, those decisions involve extended periods of time and are based on buy-and-hold investment strategies. Value investing is a clear example, as the strategy is based on buying stocks that trade for less than their intrinsic values and selling them when their value is recognized in the marketplace. Most value investors are known for their patience, as undervalued stocks often remain undervalued for significant periods of time.

Some investors choose a blend of technical, fundamental and environmental factors to influence where and when they invest. These strategists reject the 'chance' theory of investing, and attribute their higher level of returns to both insight and discipline.

Financial fail and unsuccessful stories related with stock trading abound. Every year, a lot of money is wasted in non-peer-reviewed (and largely unregulated) publications and courses attended by credulous people that get persuaded and take the bill, hoping getting rich by trading on the markets. This allow widespread promotion of inaccurate and unproven trading methods for stocks, bonds, commodities, or Forex, while generating sizable revenues for unscrupulous authors, advisers and self-titled trading

gurus. Most active money managers produce worse returns than an index, such as the S&P 500.

Speculation in stocks is a risky and complex occupation because the direction of the markets are generally unpredictable and lack transparency, also financial regulators are sometimes unable to adequately detect, prevent and remediate irregularities committed by malicious listed companies or other financial market participants. In addition, the financial markets are usually subjected to speculation. This does not invalidate the well documented true and genuine stories of large success and consistent profitability of many individual stock investors and stock investing organizations along the history.

Stock exchange

A **stock exchange** or **securities exchange** is an exchange (or bourse) where stock brokers and traders can buy and sell securities, such as shares of stock and bonds and other financial instruments. Stock exchanges may also provide facilities for the issue and redemption of such securities and instruments and capital events including the payment of income and dividends. Securities traded on a stock exchange include stock issued by listed companies, unit trusts, derivatives, pooled investment products and bonds. Stock exchanges often function as "continuous auction" markets with buyers and sellers consummating transactions at a central location such as the floor of the exchange.

To be able to trade a security on a certain stock exchange, the security must be listed there. Usually, there is a central location at least for record keeping, but trade is increasingly less linked to a physical place, as modern markets use electronic networks, which give them advantages of increased speed and reduced cost of transactions. Trade on an exchange is restricted to brokers who are members of the exchange. In recent years, various other trading venues, such as electronic communication networks, alternative trading systems and "dark pools" have taken much of the trading activity away from traditional stock exchanges.

Initial public offerings of stocks and bonds to investors is done in the primary market and subsequent trading is done in the secondary market. A stock exchange is often the most important component of a stock market. Supply and demand in stock markets are driven by various factors that, as in all free markets, affect the price of stocks .

There is usually no obligation for stock to be issued through the stock exchange itself, nor must stock be subsequently traded on an exchange. Such trading may be *off exchange* or over-the-counter. This is the usual way that derivatives and bonds are traded. Increasingly, stock exchanges are part of a global securities market. Stock exchanges also serve an economic function in providing liquidity to shareholders in providing an efficient means of disposing of shares.

The idea of debt dates back to the ancient world, as evidenced for example by ancient Mesopotamian city clay tablets recording interest-bearing loans. There is little consensus among scholars as to when corporate stock was first traded. Some see the key event as the Dutch East India Company's founding in 1602, while others point to earlier developments. Economist Ulrike Malmendier of the University of California at Berkeley argues that a share market existed as far back as ancient Rome. One of

Europe's oldest stock exchanges is the Frankfurt Stock Exchange (Frankfurter Wertpapierbörse) established in 1585 in Frankfurt am Main.

In the Roman Republic, which existed for centuries before the Empire was founded, there were *societates publicanorum*, organizations of contractors or leaseholders who performed temple-building and other services for the government. One such service was the feeding of geese on the Capitoline Hill as a reward to the birds after their honking warned of a Gallic invasion in 390 B.C. Participants in such organizations had *partes* or shares, a concept mentioned various times by the statesman and orator Cicero. In one speech, Cicero mentions "shares that had a very high price at the time." Such evidence, in Malmendier's view, suggests the instruments were tradable, with fluctuating values based on an organization's success. The *societas* declined into obscurity in the time of the emperors, as most of their services were taken over by direct agents of the state.

Tradable bonds as a commonly used type of security were a more recent innovation, spearheaded by the Italian city-states of the late medieval and early Renaissance periods.

While the Italian city-states produced the first transferable government bonds, they did not develop the other ingredient necessary to produce a fully-fledged capital market: the stock market in its modern sense. In the early 1600s the Dutch East India Company (VOC) became the first company in history to issue bonds and shares of stock to the general public. As Edward Stringham (2015) notes, "companies with transferable shares date back to classical Rome, but these were usually not enduring endeavors and no considerable secondary market existed (Neal, 1997, p. 61)." The VOC, formed to build up the spice trade, operated as a colonial ruler in what is now Indonesia and beyond, a purview that included conducting military operations against the wishes of the exploited natives and of competing colonial powers. Control of the company was held tightly by its directors, with ordinary shareholders not having much influence on management or even access to the company's accounting statements.

However, shareholders were rewarded well for their investment. The company paid an average dividend of over 16 percent per year from 1602 to 1650. Financial innovation in Amsterdam took many forms. In 1609 investors led by one Isaac Le Maire formed history's first bear syndicate, but their coordinated trading had only a modest impact in driving down share prices, which tended to remain robust throughout the 17th century. By the 1620s the company was expanding its securities issuance with the first use of corporate bonds.

Joseph de la Vega, also known as Joseph Penso de la Vega and by other variations of his name, was an Amsterdam trader from a Spanish Jewish family and a prolific writer as well as a successful businessman in 17th-century Amsterdam. His 1688 book *Confusion of Confusions* explained the workings of the city's stock market. It was the earliest book about stock trading and inner workings of a stock market, taking the form of a dialogue between a merchant, a shareholder and a philosopher, the book described a market that was sophisticated but also prone to excesses, and de la Vega offered advice to his readers on such topics as the unpredictability of market shifts and the importance of patience in investment.

In England, King William III sought to modernize the kingdom's finances to pay for its wars, and thus the first government bonds were issued in 1693 and the Bank of England was set up the following year. Soon thereafter, English joint-stock companies began going public.

London's first stockbrokers, however, were barred from the old commercial center known as the Royal Exchange, reportedly because of their rude manners. Instead, the new trade was conducted from coffee houses along Exchange Alley. By 1698 a broker named John Castaing, operating out of Jonathan's Coffee House, was posting regular lists of stock and commodity prices. Those lists mark the beginning of the London Stock Exchange.

One of history's greatest financial bubbles occurred in the next few decades. At the center of it were the South Sea Company, set up in 1711 to conduct English trade with South America, and the Mississippi Company, focused on commerce with France's Louisiana colony and touted by transplanted Scottish financier John Law, who was acting in effect as France's central banker. Investors snapped up shares in both, and whatever else was available. In 1720, at the height of the mania, there was even an offering of "a company for carrying out an undertaking of great advantage, but nobody to know what it is".

By the end of that same year, share prices had started collapsing, as it became clear that expectations of imminent wealth from the Americas were overblown. In London, Parliament passed the Bubble Act, which stated that only royally chartered companies could issue public shares. In Paris, Law was stripped of office and fled the country. Stock trading was more limited and subdued in subsequent decades. Yet the market survived, and by the 1790s shares were being traded in the young United States.

Common forms of capital raising

Besides the borrowing capacity provided to an individual or firm by the banking system, in the form of credit or a loan, there are four common forms of capital raising

used by companies and entrepreneurs. Most of these available options might be achieved, directly or indirectly, through a stock exchange.

Capital intensive companies, particularly high tech companies, always need to raise high volumes of capital in their early stages. For this reason, the public market provided by the stock exchanges has been one of the most important funding sources for many capital intensive startups. After the 1990s and early-2000s hi-tech listed companies' boom and bust in the world's major stock exchanges, it has been much more demanding for the high-tech entrepreneur to take his/her company public, unless either the company already has products in the market and is generating sales and earnings, or the company has completed advanced promising clinical trials, earned potentially profitable patents or conducted market research which demonstrated very positive outcomes. This is quite different from the situation of the 1990s to early-2000s period, when a number of companies (particularly Internet boom and biotechnology companies) went public in the most prominent stock exchanges around the world, in the total absence of sales, earnings and any well-documented promising outcome. Anyway, every year a number of companies, including unknown highly speculative and financially unpredictable hi-tech startups, are listed for the first time in all the major stock exchanges – there are even specialized entry markets for these kind of companies or stock indexes tracking their performance (examples include the Alternext, CAC Small, SDAX, TecDAX, or most of the third market good companies).

Limited partnerships

A number of companies have also raised significant amounts of capital through R&D limited partnerships. Tax law changes that were enacted in 1987 in the United States changed the tax deductibility of investments in R&D limited partnerships. In order for a partnership to be of interest to investors today, the cash on cash return must be high enough to entice investors.

Venture capital

A third usual source of capital for startup companies has been venture capital. This source remains largely available today, but the maximum statistical amount that the venture company firms in aggregate will invest in any one company is not limitless (it was approximately $15 million in 2001 for a biotechnology company).

Corporate partners

A fourth alternative source of cash for a private company is a corporate partner, usually an established multinational company, which provides capital for the smaller

company in return for marketing rights, patent rights, or equity. Corporate partnerships have been used successfully in a large number of cases.

Mobilizing savings for investment

When people draw their savings and invest in shares (through an IPO or the issuance of new company shares of an already listed company), it usually leads to rational allocation of resources because funds, which could have been consumed, or kept in idle deposits with banks, are mobilized and redirected to help companies' management boards finance their organizations. This may promote business activity with benefits for several economic sectors such as agriculture, commerce and industry, resulting in stronger economic growth and higher productivity levels of firms.

Facilitating company growth

Companies view acquisitions as an opportunity to expand product lines, increase distribution channels, hedge against volatility, increase their market share, or acquire other necessary business assets. A takeover bid or a merger agreement through the stock market is one of the simplest and most common ways for a company to grow by acquisition or fusion.

Profit sharing

Both casual and professional stock investors, as large as institutional investors or as small as an ordinary middle-class family, through dividends and stock price increases that may result in capital gains, share in the wealth of profitable businesses. Unprofitable and troubled businesses may result in capital losses for shareholders.

Corporate governance

By having a wide and varied scope of owners, companies generally tend to improve management standards and efficiency to satisfy the demands of these shareholders and the more stringent rules for public corporations imposed by public stock exchanges and the government. Consequently, it is alleged that public companies (companies that are owned by shareholders who are members of the general public and trade shares on public exchanges) tend to have better management records than privately held companies (those companies where shares are not publicly traded, often owned by the company founders, their families and heirs, or otherwise by a small group of investors).

Despite this claim, some well-documented cases are known where it is alleged that there has been considerable slippage in corporate governance on the part of some public companies. The dot-com bubble in the late 1990s, and the subprime mortgage crisis in 2007–08, are classical examples of corporate mismanagement. Companies like Pets.com (2000), Enron (2001), One.Tel (2001), Sunbeam (2001), Webvan(2001) , Adelphia (2002), MCI WorldCom (2002), Parmalat (2003), American International Group (2008), Bear Stearns (2008), Lehman Brothers (2008), General Motors (2009) and Satyam Computer Services (2009) were among the most widely scrutinized by the media.

To assist in corporate governance many banks and companies worldwide utilize securities identification numbers (USIN) to identify, uniquely, their stocks, bonds and other securities. Adding an ISIN code helps to distinctly identify securities and the ISIN system is used worldwide by funds, companies, and governments.

However, when poor financial, ethical or managerial records are known by the stock investors, the stock and the company tend to lose value. In the stock exchanges, shareholders of underperforming firms are often penalized by significant share price decline, and they tend as well to dismiss incompetent management teams.

Creating investment opportunities for small investors

As opposed to other businesses that require huge capital outlay, investing in shares is open to both the large and small stock investors because a person buys the number of shares they can afford. Therefore, the Stock Exchange provides the opportunity for small investors to own shares of the same companies as large investors.

Government capital-raising for development projects

Governments at various levels may decide to borrow money to finance infrastructure projects such as sewage and water treatment works or housing estates by selling another category of securities known as bonds. These bonds can be raised through the stock exchange whereby members of the public buy them, thus loaning money to the government. The issuance of such bonds can obviate, in the short term, direct taxation of citizens to finance development—though by securing such bonds with the full faith and credit of the government instead of with collateral, the government must eventually tax citizens or otherwise raise additional funds to make any regular coupon payments and refund the principal when the bonds mature.

Barometer of the economy

At the stock exchange, share prices rise and fall depending, largely, on economic forces. Share prices tend to rise or remain stable when companies and the economy in general show signs of stability and growth. An economic recession, depression, or financial crisis could eventually lead to a stock market crash. Therefore, the movement of share prices and in general of the stock indexes can be an indicator of the general trend in the economy.

Listing requirements

Each stock exchange imposes its own listing requirements upon companies that want to be listed on that exchange. Such conditions may include minimum number of shares outstanding, minimum market capitalization, and minimum annual income.

Examples of listing requirements

The listing requirements imposed by some stock exchanges include:

- **New York Stock Exchange:** the New York Stock Exchange (NYSE) requires a company to have issued at least a million shares of stock worth $100 million and must have earned more than $10 million over the last three years.
- **NASDAQ Stock Exchange:** NASDAQ requires a company to have issued at least 1.25 million shares of stock worth at least $70 million and must have earned more than $11 million over the last three years.
- **London Stock Exchange:** the main market of the London Stock Exchange requires a minimum market capitalization (£700,000), three years of audited financial statements, minimum public float (25%) and sufficient working capital for at least 12 months from the date of listing.
- **Bombay Stock Exchange:** Bombay Stock Exchange (BSE) requires a minimum market capitalization of ₹250 million (US$3.8 million) and minimum public float equivalent to ₹100 million(US$1.5 million).

Ownership

Stock exchanges originated as mutual organizations, owned by its member stock brokers. There has been a recent trend for stock exchanges to *demutualize*, where the members sell their shares in an initial public offering. In this way the mutual organization becomes a corporation, with shares that are listed on a stock exchange. Examples are Australian Securities Exchange (1998), Euronext (merged with New York Stock Exchange), NASDAQ (2002), Bursa Malaysia (2004), the New York

Stock Exchange (2005), Bolsas y Mercados Españoles, and the São Paulo Stock Exchange (2007). The Shenzhen and Shanghai stock exchanges can be characterized as quasi-state institutions insofar as they were created by government bodies in China and their leading personnel are directly appointed by the China Securities Regulatory Commission. Another example is Tashkent republican stock exchange (Uzbekistan) established in 1994, three years after the collapse of the Soviet Union, mainly state-owned but has a form of a public corporation (joint stock company). According to an Uzbek government decision (March 2012) 25 percent minus one share of Tashkent stock exchange was expected to be sold to Korea Exchange(KRX) in 2014.

Other types of exchanges

In the 19th century, exchanges were opened to trade forward contracts on commodities. Exchange traded forward contracts are called futures contracts. These *commodity exchanges* later started offering future contracts on other products, such as interest rates and shares, as well as options contracts. They are now generally known as futures exchanges.

Stock valuation

In financial markets, **stock valuation** is the method of calculating theoretical values of companies and their stocks. The main use of these methods is to predict future market prices, or more generally, potential market prices, and thus to profit from price movement – stocks that are judged *undervalued* (with respect to their theoretical value) are bought, while stocks that are judged *overvalued* are sold, in the expectation that undervalued stocks will overall rise in value, while overvalued stocks will generally decrease in value.

In the view of fundamental analysis, stock valuation based on fundamentals aims to give an estimate of the intrinsic value of a stock, based on predictions of the future cash flows and profitability of th e business. Fundamental analysis may be replaced or augmented by market criteria – what the market will pay for the stock, disregarding intrinsic value. These can be combined as "predictions of future cash flows/profits (fundamental)", together with "what will the market pay for these profits?" These can be seen as "supply and demand" sides – what underlies the supply (of stock), and what drives the (market) demand for stock?

In the view of John Maynard Keynes, stock valuation is not a *prediction* but a *convention*, which serves to facilitate investment and ensure that stocks are liquid, despite being underpinned by an illiquid business and its illiquid investments, such as factories.

The most theoretically sound **stock valuation method**, called income valuation or the discounted cash flow (**DCF**) method, involves **discounting of the profits** (dividends, earnings, or cash flows) the stock will bring to the stockholder in the foreseeable future, and a final value on disposal. The discounted rate normally includes a risk premium which is commonly based on the capital asset pricing model.

In July 2010, a Delaware court ruled on appropriate inputs to use in discounted cash flow analysis in a dispute between shareholders and a company over the proper fair value of the stock. In this case the shareholders' model provided value of $139 per share and the company's model provided $89 per share. Contested inputs included the terminal growth rate, the equity risk premium, and beta.

The fundamental valuation is the valuation that people use to justify stock prices. The most common example of this type of valuation methodology is P/E ratio, which stands for Price to Earnings Ratio. This form of valuation is based on historic ratios and statistics and aims to assign value to a stock based on measurable attributes. This form of valuation is typically what drives long-term stock prices.

The other way stocks are valued is based on supply and demand. The more people that want to buy the stock, the higher its price will be. And conversely, the more people that want to sell the stock, the lower the price will be. This form of valuation is very hard to understand or predict, and it often drives the short-term stock market trends.

There are many different ways to value stocks. The key is to take each approach into account while formulating an overall opinion of the stock. If the valuation of a company is lower or higher than other similar stocks, then the next step would be to determine the reasons.

EPS is the Net income available to common shareholders of the company divided by the number of shares outstanding. Usually there will be two types of EPS listed: a GAAP (Generally Accepted Accounting Principles) EPS and a Pro Forma EPS, which means that the income has been adjusted to exclude any one time items as well as some non-cash items like amortization of goodwill or stock option expenses. The most important thing to look for in the EPS figure is the overall quality of earnings. Make sure the company is not trying to manipulate their EPS numbers to make it look like they are more profitable. Also, look at the growth in EPS over the past several quarters / years to understand how volatile their EPS is, and to see if they are an underachiever or an overachiever. In other words, have they consistently beaten expectations or are they constantly restating and lowering their forecasts?

The EPS number that most analysts use is the pro forma EPS. To compute this number, use the net income that excludes any one-time gains or losses and excludes any non-cash expenses like amortization of goodwill. Never exclude non-cash compensation expense as that does impact earnings per share. Then divide this number by the number of fully diluted shares outstanding. Historical EPS figures and forecasts for the next 1–2 years can be found by visiting free financial sites such as Yahoo Finance (enter the ticker and then click on "estimates").

Now that the analyst has several EPS figures (historical and forecasts), the analyst will be able to look at the most common valuation technique used, the price to earnings ratio, or P/E. To compute this figure, one divides the stock price by the annual EPS figure. For example, if the stock is trading at $10 and the EPS is $0.50, the P/E is 20 times. A complete analysis of the P/E multiple includes a look at the historical and forward ratios.

Historical P/Es are computed by taking the current price divided by the sum of the EPS for the last four quarters, or for the previous year. Historical trends of the P/E should also be considered by viewing a chart of its historical P/E over the last several years (one can find this on most finance sites like Yahoo Finance). Specifically

consider what range the P/E has traded in so as to determine whether the current P/E is high or low versus its historical average.

Forward P/Es reflect the future growth of the company into the future. Forward P/Es are computed by taking the current stock price divided by the sum of the EPS estimates for the next four quarters, or for the EPS estimate for next calendar or fiscal year or two.

P/Es change constantly. If there is a large price change in a stock, or if the earnings (EPS) estimates change, the ratio is recomputed.

Valuations rely very heavily on the expected growth rate of a company. One must look at the historical growth rate of both sales and income to get a feeling for the type of future growth expected. However, companies are constantly changing, as well as the economy, so solely using historical growth rates to predict the future is not an acceptable form of valuation. Instead, they are used as guidelines for what future growth could look like if similar circumstances are encountered by the company. Calculating the future growth rate requires personal investment research. This may take form in listening to the company's quarterly conference call or reading a press release or other company article that discusses the company's growth guidance. However, although companies are in the best position to forecast their own growth, they are often far from accurate, and unforeseen events could cause rapid changes in the economy and in the company's industry.

For any valuation technique, it is important to look at a range of forecast values. For example, if the company being valued has been growing earnings between 5 and 10% each year for the last 5 years, but believes that it will grow 15 –20% this year, a more conservative growth rate of 10–15% would be appropriate in valuations. Another example would be for a company that has been going through restructuring. It may have been growing earnings at 10–15% over the past several quarters or years because of cost cutting, but their sales growth could be only 0–5%. This would signal that their earnings growth will probably slow when the cost cutting has fully taken effect. Therefore, forecasting an earnings growth closer to the 0–5% rate would be more appropriate rather than the 15–20%. Nonetheless, the growth rate method of valuations relies heavily on gut feel to make a forecast. This is why analysts often make inaccurate forecasts, and also why familiarity with a company is essential before making a forecast.

Price earnings to growth (PEG) ratio

This valuation technique has really become popular over the past decade or so. It is better than just looking at a P/E because it takes three factors into account; the price,

earnings, and earnings growth rates. To compute the PEG ratio, the Forward P/E is divided by the expected earnings growth rate (one can also use historical P/E and historical growth rate to see where it has traded in the past). This will yield a ratio that is usually expressed as a percentage. The theory goes that as the percentage rises over 100% the stock becomes more and more overvalued, and as the PEG ratio falls below 100% the stock becomes more and more undervalued. The theory is based on a belief that P/E ratios should approximate the long-term growth rate of a company's earnings. Whether or not this is true will never be proven and the theory is therefore just a rule of thumb to use in the overall valuation process.

Here is an example of how to use the PEG ratio to compare stocks. Stock A is trading at a forward P/E of 15 and expected to grow at 20%. Stock B is trading at a forward P/E of 30 and expected to grow at 25%. The PEG ratio for Stock A is 75% (15/20) and for Stock B is 120% (30/25). According to the PEG ratio, Stock A is a better purchase because it has a lower PEG ratio, or in other words, you can purchase its future earnings growth for a lower relative price than that of Stock B.

Return on Invested Capital (ROIC)

This valuation technique measures how much money the company makes each year per dollar of invested capital. Invested Capital is the amount of money invested in the company by both stockholders and debtors. The ratio is expressed as a percent and one looks for a percent that approximates the level of growth that expected. In its simplest definition, this ratio measures the investment return that management is able to get for its capital. The higher the number, the better the return.

To compute the ratio, take the pro forma net income (same one used in the EPS figure mentioned above) and divide it by the invested capital. Invested capital can be estimated by adding together the stockholders equity, the total long and short term debt and accounts payable, and then subtracting accounts receivable and cash (all of these numbers can be found on the company's latest quarterly balance sheet). This ratio is much more useful when comparing it to other companies being valued.

Return on Assets (ROA)

Similar to ROIC, ROA, expressed as a percent, measures the company's ability to make money from its assets. To measure the ROA, take the pro forma net income divided by the total assets. However, because of very common irregularities in balance sheets (due to things like Goodwill, write-offs, discontinuations, etc.) this ratio is not always a good indicator of the company's potential. If the ratio is higher or lower than expected, one should look closely at the assets to see what could be over or understating the figure.

Price to Sales (P/S)

This figure is useful because it compares the current stock price to the annual sales. In other words, it describes how much the stock costs per dollar of sales earned.

Market Cap

Market cap, which is short for market capitalization, is the value of all of the company's stock. To measure it, multiply the current stock price by the fully diluted shares outstanding. Remember, the market cap is only the value of the stock. To get a more complete picture, look at the enterprise value.

Enterprise Value (EV)

Enterprise value is equal to the total value of the company, as it is trading for on the stock market. To compute it, add the market cap and the total net debt of the company. The total net debt is equal to total long and short term debt plus accounts payable, minus accounts receivable, minus cash. The enterprise value is the best approximation of what a company is worth at any point in time because it takes into account the actual stock price instead of balance sheet prices .When analysts say that a company is a "billion dollar" company, they are often referring to its total enterprise value. Enterprise value fluctuates rapidly based on stock price changes.

EV to Sales

This ratio measures the total company value as compared to its annual sales. A high ratio means that the company's value is much more than its sales. To compute it, divide the EV by the net sales for the last four quarters. This ratio is especially useful when valuing companies that do not have earnings, or that are going through unusually rough times. For example, if a company is facing restructuring and it is currently losing money, then the P/E ratio would be irrelevant. However, by applying an EV to Sales ratio, one could compute what that company could trade for when its restructuring is over and its earnings are back to normal.

EBITDA

EBITDA stands for earnings before interest, taxes, depreciation and amortization. It is one of the best measures of a company's cash flow and is used for valuing both public and private companies. To compute EBITDA, use a company's income statement, take the net income and then add back interest, taxes, depreciation, amortization and any other non-cash or one-time charges. This leaves you with a number that approximates how much cash the company is producing. EBITDA is a very popular

figure because it can easily be compared across companies, even if not all of the companies are profitable.

EV to EBITDA

This is perhaps one of the best measurements of whether or not a company is cheap or expensive. To compute, divide the EV by EBITDA .The higher the number, the more expensive the company is. However, remember that more expensive companies are often valued higher because they are growing faster or because they are a higher quality company. With that said, the best way to use EV/EBITDA is to compare it to that of other similar companies.

Approximate valuation approaches

Average growth approximation

Assuming that two stocks have the same earnings growth, the one with a lower P/E is a better value. The P/E method is perhaps the most commonly used valuation method in the stock brokerage industry. By using comparison firms, a target price/earnings (or P/E) ratio is selected for the company, and then the future earnings of the company are estimated. The valuation's fair price is simply estimated earnings times target P/E. This model is essentially the same model as Gordon's model, if k-g is estimated as the dividend payout ratio (D/E) divided by the target P/E ratio.

Limited high-growth period approximation

When a stock has a significantly higher growth rate than its peers, it is sometimes assumed that the earnings growth rate will be sustained for a short time (say, 5 years), and then the growth rate will revert to the mean. This is probably the most rigorous approximation that is practical.

While these DCF models are commonly used, the uncertainty in these values is hardly

ever discussed. Note that the models diverge for and hence are extremely sensitive to the difference of dividend growth to discount factor. One might argue that an analyst can justify any value (and that would usually be one close to the current price supporting his call) by fine-tuning the growth/discount assumptions.

Implied growth models

One can use the Gordon model or the limited high-growth period approximation model to impute an implied growth estimate. To do this, one takes the average P/E

and average growth for a comparison index, uses the current (or forward) P/E of the stock in question, and calculates what growth rate would be needed for the two valuation equations to be equal. This yields an estimate of the "break-even" growth rate for the stock's current P/E ratio. (Note : we are using earnings not dividends here because dividend policies vary and may be influenced by many factors including tax treatment).

Imputed growth acceleration ratio

Subsequently, one can divide this imputed growth estimate by recent historical growth rates. If the resulting ratio is greater than one, it implies that the stock would need to experience accelerated growth relative to its prior recent historical growth to justify its current P/E (higher values suggest potential overvaluation). If the resulting ratio is less than one, it implies that either the market expects growth to slow for this stock or that the stock could sustain its current P/E with lower than historical growth (lower values suggest potential undervaluation). Comparison of the IGAR across stocks in the same industry may give estimates of relative value. IGAR averages across an industry may give estimates of relative expected changes in industry growth (e.g. the market's imputed expectation that an industry is about to "take-off" or stagnate). Naturally, any differences in IGAR between stocks in the same industry may be due to differences in fundamentals, and would require further specific analysis.

Market criteria (potential price)

Some feel that if the stock is listed in a well-organized stock market, with a large volume of transactions, the market price will reflect all known information relevant to the valuation of the stock. This is called the efficient-market hypothesis.

On the other hand, studies made in the field of behavioral finance tend to show that deviations from the fair price are rather common, and sometimes quite large.

Thus, in addition to fundamental economic criteria, market criteria also have to be taken into account market-based valuation. Valuing a stock requires not just an estimate its fair value, but also to determine its **potential price range**, taking into account market behavior aspects. One of the behavioral valuation tools is the **stock image**, a coefficient that bridges the theoretical fair value and the market price.

Keynes's view

In the view of noted economist John Maynard Keynes, stock valuation is not an *estimate* of the fair value of stocks, but rather a *convention*, which serves to

provide the necessary stability and liquidity for investment, so long as the convention does not break down:

> Certain classes of investment are governed by the average expectation of those who deal on the Stock Exchange as revealed in the price of shares, rather than by the genuine expectations of the professional entrepreneur. How then are these highly significant daily, even hourly, revaluations of existing investments carried out in practice?
>
> In practice, we have tacitly agreed, as a rule, to fall back on what is, in truth, a convention. The essence of this convention – though it does not, of course, work out so simply – lies in assuming that the existing state of affairs will continue indefinitely, except in so far as we have specific reasons to expect a change.
>
> ...
>
> Nevertheless the above conventional method of calculation will be compatible with a considerable measure of continuity and stability in our affairs, so long as we can rely on the maintenance of the convention. …
>
> Thus investment becomes reasonably 'safe' for the individual investor over short periods, and hence over a succession of short periods however many, if he can fairly rely on there being no breakdown in the convention and on his therefore having an opportunity to revise his judgment and change his investment, before there has been time for much to happen. Investments which are 'fixed' for the community are thus made 'liquid' for the individual.

— The General Theory, Chapter 12

Spot market

The **spot market** or **cash market** is a public financial market in which financial instruments or commodities are traded for immediate delivery. It contrasts with a futures market, in which delivery is due at a later date. In a spot market, settlement normally happens in T+2 working days, i.e., delivery of cash and commodity must be done after two working days of the trade date. A spot market can be through an exchange or over-the-counter (OTC). Spot markets can operate wherever the infrastructure exists to conduct the transaction.

Exchange

Securities (i.e. financial instruments) and commodities are traded on an exchange using, making, and possibly changing the current market price.

OTC

In the over the counter market, trades are based on contracts made directly between two parties, and not subject to the rules of an exchange. The contract terms are agreed between the parties and may be non-standard. The price will probably not be published.

Examples

The spot foreign exchange market imposes a two-day delivery period, originally due to the time it would take to move cash from one bank to another. Most speculative retail forex trading is done as spot transactions on an online trading platform.

Energy Spot

The spot energy market allows producers of surplus energy to instantly locate available buyers for this energy, negotiate prices within milliseconds, and deliver energy to the customer just a few minutes later. Spot markets can be either privately operated or controlled by industry organizations or government agencies. They frequently attract speculators, since spot market prices are known to the public almost as soon as deals are transacted. Examples of energy spot markets for natural gas in Europe are the Title Transfer Facility (TTF) in the Netherlands and the National Balancing Point (NBP) in the United Kingdom.

Primary market

The **primary market** is the part of the capital market that deals with issuing of new securities. Primary markets create long term instruments through which corporate entities raise funds from the capital market.

In a primary market, companies, governments or public sector institutions can raise funds through bond issues and corporations can raise capital through the sale of new stock through an initial public offering(IPO). This is often done through an investment bank or finance syndicate of securities dealers. The process of selling new shares to investors is called underwriting. Dealers earn a commission that is built into the price of the security offering, though it can be found in the prospectus.

Instead of going through underwriters, corporations can make a **primary issue** or **right issue** of its debt or stock, which involves the issue by a corporation of its own debt or new stock directly to institutional investors or the public or it can seek additional capital from existing shareholders.

Once issued the securities typically trade on a secondary market such as a stock exchange, bond market or derivatives exchange.

Features

The main features of primary markets are:

- This is the market for new long term equity capital. The primary market is the market where the securities are sold for the first time. Therefore, it is also called the new issue market (NIM).
- In a primary issue, the securities are issued by the company directly to investors.
- The company receives the money and issues new security certificates to the investors.
- Primary issues are used by companies for the purpose of setting up new business or for expanding or modernizing the existing business.
- The primary market performs the crucial function of facilitating capital formation in the economy.
- The new issue market does not include certain other sources of new long term external finance, such as loans from financial institutions. Borrowers in the new issue market may be raising capital for converting private capital into public capital; this is known as "going public."

its share can be issue in face value, premium value & par value.

Bond

In finance, a **bond** is an instrument of indebtedness of the bond issuer to the holders. The most common types of bonds include municipal bonds and corporate bonds.

The bond is a debt security, under which the issuer owes the holders a debt and (depending on the terms of the bond) is obliged to pay them interest (the coupon) or to repay the principal at a later date, termed the maturity date. Interest is usually payable at fixed intervals (semiannual, annual, sometimes monthly). Very often the bond is negotiable, that is, the ownership of the instrument can be transferred in the secondary market. This means that once the transfer agents at the bank medallion stamp the bond, it is highly liquid on the secondary market.

Thus a bond is a form of loan or IOU: the *holder* of the bond is the lender (creditor), the *issuer* of the bond is the borrower (debtor), and the *coupon* is the interest. Bonds provide the borrower with external funds to finance long-term investments, or, in the case of government bonds, to finance current expenditure. Certificates of deposit (CDs) or short-term commercial paper are considered to be money market instruments and not bonds: the main difference is the length of the term of the instrument.

Bonds and stocks are both securities, but the major difference between the two is that (capital) stockholders have an equity stake in a company (that is, they are owners), whereas bondholders have a creditor stake in the company (that is, they are lenders). Being a creditor, bondholders have priority over stockholders. This means they will be repaid in advance of stockholders, but will rank behind secured creditors, in the event of bankruptcy. Another difference is that bonds usually have a defined term, or maturity, after which the bond is redeemed, whereas stocks typically remain outstanding indefinitely. An exception is an irredeemable bond, such as a consol, which is a perpetuity, that is, a bond with no maturity.

Bonds are issued by public authorities, credit institutions, companies and supranational institutions in the primary markets. The most common process for issuing bonds is through underwriting. When a bond issue is underwritten, one or more securities firms or banks, forming a syndicate, buy the entire issue of bonds from the issuer and re-sell them to investors. The security firm takes the risk of being unable to sell on the issue to end investors. Primary issuance is arranged by *bookrunners* who arrange the bond issue, have direct contact with investors and act as advisers to the bond issuer in terms of timing and price of the bond issue. The bookrunner is listed first among all underwriters participating in the issuance in the tombstone ads commonly used to announce bonds to the public. The bookrunners'

willingness to underwrite must be discussed prior to any decision on the terms of the bond issue as there may be limited demand for the bonds.

In contrast, government bonds are usually issued in an auction. In some cases, both members of the public and banks may bid for bonds. In other cases, only market makers may bid for bonds. The overall rate of return on the bond depends on both the terms of the bond and the price paid. The terms of the bond, such as the coupon, are fixed in advance and the price is determined by the market.

In the case of an underwritten bond, the underwriters will charge a fee for underwriting. An alternative process for bond issuance, which is commonly used for smaller issues and avoids this cost, is the private placement bond. Bonds sold directly to buyers may not be tradeable in the bond market.

Historically an alternative practice of issuance was for the borrowing government authority to issue bonds over a period of time, usually at a fixed price, with volumes sold on a particular day dependent on market conditions. This was called a *tap issue* or *bond tap*.

Nominal, principal, par, or face amount is the amount on which the issuer pays interest, and which, most commonly, has to be repaid at the end of the term. Some structured bonds can have a redemption amount which is different from the face amount and can be linked to performance of particular assets.

The issuer has to repay the nominal amount on the maturity date. As long as all due payments have been made, the issuer has no further obligations to the bond holders after the maturity date. The length of time until the maturity date is often referred to as the term or tenure or maturity of a bond. The maturity can be any length of time, although debt securities with a term of less than one year are generally designated money market instruments rather than bonds. Most bonds have a term of up to 30 years. Some bonds have been issued with terms of 50 years or more, and historically there have been some issues with no maturity date (irredeemable). In the market for United States Treasury securities, there are three categories of bond maturities:

- short term (bills): maturities between one and five years;
- medium term (notes): maturities between six and twelve years;
- long term (bonds): maturities longer than twelve years.

The coupon is the interest rate that the issuer pays to the holder. Usually this rate is fixed throughout the life of the bond. It can also vary with a money market index, such as LIBOR, or it can be even more exotic. The name "coupon" arose because in the past, paper bond certificates were issued which had coupons attached to them, one for each interest payment. On the due dates the bondholder would hand in the coupon to a bank in exchange for the interest payment. Interest can be paid at different frequencies: generally semi-annual, i.e. every 6 months, or annual.

The yield is the rate of return received from investing in the bond. It usually refers either to

- The current yield, or running yield, which is simply the annual interest payment divided by the current market price of the bond (often the clean price).
- The yield to maturity, or redemption yield, which is a more useful measure of the return of the bond. This takes into account the current market price, and the amount and timing of all remaining coupon payments and of the repayment due on maturity. It is equivalent to the internal rate of return of a bond.

Credit quality

The quality of the issue refers to the probability that the bondholders will receive the amounts promised at the due dates. This will depend on a wide range of factors. High-yield bonds are bonds that are rated below investment grade by the credit rating agencies. As these bonds are riskier than investment grade bonds, investors expect to earn a higher yield. These bonds are also called *junk bonds*.

Market price

The market price of a tradable bond will be influenced, amongst other factors, by the amounts, currency and timing of the interest payments and capital repayment due, the quality of the bond, and the available redemption yield of other comparable bonds which can be traded in the markets.

The price can be quoted as clean or dirty. "Dirty" includes the present value of all future cash flows, including accrued interest, and is most often used in Europe. "Clean" does not include accrued interest, and is most often used in the U.S.

The issue price at which investors buy the bonds when they are first issued will typically be approximately equal to the nominal amount. The net proceeds that the

issuer receives are thus the issue price, less issuance fees. The market price of the bond will vary over its life: it may trade at a premium (above par, usually because market interest rates have fallen since issue), or at a discount (price below par, if market rates have risen or there is a high probability of default on the bond).

Others

Indentures and Covenants — An indenture is a formal debt agreement that establishes the terms of a bond issue, while covenants are the clauses of such an agreement. Covenants specify the rights of bondholders and the duties of issuers, such as actions that the issuer is obligated to perform or is prohibited from performing. In the U.S., federal and state securities and commercial laws apply to the enforcement of these agreements, which are construed by courts as contracts between issuers and bondholders. The terms may be changed only with great difficulty while the bonds are outstanding, with amendments to the governing document generally requiring approval by a majority (or super-majority) vote of the bondholders.

- Optionality: Occasionally a bond may contain an embedded option; that is, it grants option-like features to the holder or the issuer:
    - Callability — Some bonds give the issuer the right to repay the bond before the maturity date on the call dates; These bonds are referred to as callable bonds. Most callable bonds allow the issuer to repay the bond at par. With some bonds, the issuer has to pay a premium, the so-called call premium. This is mainly the case for high-yield bonds. These have very strict covenants, restricting the issuer in its operations. To be free from these covenants, the issuer can repay the bonds early, but only at a high cost.
    - Putability — Some bonds give the holder the right to force the issuer to repay the bond before the maturity date on the put dates; These are referred to as retractable or putable bonds.
    - Call dates and put dates—the dates on which callable and putable bonds can be redeemed early. There are four main categories:
        - A Bermudan callable has several call dates, usually coinciding with coupon dates.
        - A European callable has only one call date. This is a special case of a Bermudan callable.
        - An American callable can be called at any time until the maturity date.

        - A death put is an optional redemption feature on a debt instrument allowing the beneficiary of the estate of a deceased bondholder to put (sell) the bond back to the issuer at face value in the event of the bondholder's death or legal incapacitation. This is also known as a "survivor's option".
    - Sinking fund provision of the corporate bond indenture requires a certain portion of the issue to be retired periodically. The entire bond issue can be liquidated by the maturity date; if not, the remainder is called balloon maturity. Issuers may either pay to trustees, which in turn call randomly selected bonds in the issue, or, alternatively, purchase bonds in open market, then return them to trustees.
        - Bonds are often identified by its international securities identification number, or ISIN, which is a 12 digit alphanumeric code that uniquely identifies debt securities.
- A smart bond is an automated programmable bond contract that uses the capabilities of a blockchain database to operate as a cryptographically-secure yet open and transparent general bond ledger. It is one of a class of financial instruments known as a smart contract, "a computerized transaction protocol that executes the terms of a contract." Smart bond technology may lower transaction costsby the elimination of the "middle or back office", as well as the bond registry, substantially reducing the cost of bond servicing. Another potential benefit is the potential for instantaneous settlement, rather than the days, as well as lower operational risk. In 2015, UBS was experimenting with smart bonds that use the bitcoin blockchain.

The following descriptions are not mutually exclusive, and more than one of them may apply to a particular bond:

- Fixed rate bonds have a coupon that remains constant throughout the life of the bond. A variation are stepped-coupon bonds, whose coupon increases during the life of the bond.
- Floating rate notes (FRNs, floaters) have a variable coupon that is linked to a reference rate of interest, such as Libor or Euribor. For example, the coupon may be defined as three-month USD LIBOR + 0.20%. The coupon rate is recalculated periodically, typically every one or three months.
- Zero-coupon bonds (zeros) pay no regular interest. They are issued at a substantial discount to par value, so that the interest is effectively rolled up to

maturity (and usually taxed as such). The bondholder receives the full principal amount on the redemption date. An example of zero coupon bonds is Series E savings bonds issued by the U.S. government. Zero-coupon bonds may be created from fixed rate bonds by a financial institution separating ("stripping off") the coupons from the principal. In other words, the separated coupons and the final principal payment of the bond may be traded separately. See IO (Interest Only) and PO (Principal Only).

- High-yield bonds (junk bonds) are bonds that are rated below investment grade by the credit rating agencies. As these bonds are riskier than investment grade bonds, investors expect to earn a higher yield.
- Convertible bonds let a bondholder exchange a bond to a number of shares of the issuer's common stock. These are known as hybrid securities, because they combine equity and debt features.
- Exchangeable bonds allows for exchange to shares of a corporation other than the issuer.
- Inflation-indexed bonds (linkers) (US) or Index-linked bond (UK), in which the principal amount and the interest payments are indexed to inflation. The interest rate is normally lower than for fixed rate bonds with a comparable maturity (this position briefly reversed itself for short-term UK bonds in December 2008). However, as the principal amount grows, the payments increase with inflation. The United Kingdom was the first sovereign issuer to issue inflation linked gilts in the 1980s. Treasury Inflation-Protected Securities (TIPS) and I-bonds are examples of inflation linked bonds issued by the U.S. government.

- Other indexed bonds, for example equity-linked notes and bonds indexed on a business indicator (income, added value) or on a country's GDP.
- Asset-backed securities are bonds whose interest and principal payments are backed by underlying cash flows from other assets. Examples of asset-backed securities are mortgage-backed securities(MBSs), collateralized mortgage obligations (CMOs) and collateralized debt obligations (CDOs).
- Subordinated bonds are those that have a lower priority than other bonds of the issuer in case of liquidation. In case of bankruptcy, there is a hierarchy of creditors. First the liquidator is paid, then government taxes, etc. The first bond holders in line to be paid are those holding what is called senior bonds. After they have been paid, the subordinated bond holders are paid. As a result, the risk is higher. Therefore, subordinated bonds usually have a lower credit rating than senior bonds. The main examples of subordinated bonds can be found in bonds issued by banks, and asset-backed securities. The latter are often issued

in tranches. The senior tranches get paid back first, the subordinated tranches later.

- Covered bonds are backed by cash flows from mortgages or public sector assets. Contrary to asset-backed securities the assets for such bonds remain on the issuers balance sheet.
- Perpetual bonds are also often called perpetuities or 'Perps'. They have no maturity date. The most famous of these are the UK Consols, which are also known as Treasury Annuities or Undated Treasuries. Some of these were issued back in 1888 and still trade today, although the amounts are now insignificant. Some ultra-long-term bonds (sometimes a bond can last centuries: West Shore Railroad issued a bond which matures in 2361 (i.e. 24th century) are virtually perpetuities from a financial point of view, with the current value of principal near zero.
- Bearer bond is an official certificate issued without a named holder. In other words, the person who has the paper certificate can claim the value of the bond. Often they are registered by a number to prevent counterfeiting, but may be traded like cash. Bearer bonds are very risky because they can be lost or stolen. Especially after federal income tax began in the United States, bearer bonds were seen as an opportunity to conceal income or assets. U.S. corporations stopped issuing bearer bonds in the 1960s, the U.S. Treasury stopped in 1982, and state and local tax-exempt bearer bonds were prohibited in 1983.
- Registered bond is a bond whose ownership (and any subsequent purchaser) is recorded by the issuer, or by a transfer agent. It is the alternative to a Bearer bond. Interest payments, and the principal upon maturity are sent to the registered owner.
- A government bond, also called Treasury bond, is issued by a national government and is not exposed to default risk. It is characterized as the safest bond, with the lowest interest rate. A treasury bond is backed by the “full faith and credit” of the relevant government. For that reason, for the major OECD countries this type of bond is often referred to as risk-free.

- Municipal bond is a bond issued by a state, U.S. Territory, city, local government, or their agencies. Interest income received by holders of municipal bonds is often exempt from the federal income taxand from the income tax of the state in which they are issued, although municipal bonds issued for certain purposes may not be tax exempt.
- Build America Bonds (BABs) are a form of municipal bond authorized by the American Recovery and Reinvestment Act of 2009. Unlike traditional US municipal bonds, which are usually tax exempt, interest received on BABs is

subject to federal taxation. However, as with municipal bonds, the bond is tax-exempt within the US state where it is issued. Generally, BABs offer significantly higher yields (over 7 percent) than standard municipal bonds.

- Book-entry bond is a bond that does not have a paper certificate. As physically processing paper bonds and interest coupons became more expensive, issuers (and banks that used to collect coupon interest for depositors) have tried to discourage their use. Some book-entry bond issues do not offer the option of a paper certificate, even to investors who prefer them.
- Lottery bonds are issued by European and other states. Interest is paid as on a traditional fixed rate bond, but the issuer will redeem randomly selected individual bonds within the issue according to a schedule. Some of these redemptions will be for a higher value than the face value of the bond.
- War bond is a bond issued by a government to fund military operations during wartime. This type of bond has low return rate.
- Serial bond is a bond that matures in installments over a period of time. In effect, a $100,000, 5-year serial bond would mature in a $20,000 annuity over a 5-year interval.
- Revenue bond is a special type of municipal bond distinguished by its guarantee of repayment solely from revenues generated by a specified revenue-generating entity associated with the purpose of the bonds. Revenue bonds are typically "non-recourse", meaning that in the event of default, the bond holder has no recourse to other governmental assets or revenues.
- Climate bond is a bond issued by a government or corporate entity in order to raise finance for climate change mitigation- or adaptation-related projects or programmes.
- Dual currency bonds
- Retail bonds are a type of corporate bond mostly designed for ordinary investors. They have become particularly attractive since the London Stock Exchange (LSE) launched an order book for retail bonds.
- Social impact bonds are an agreement for public sector entities to pay back private investors after meeting verified improved social outcome goals that result in public sector savings from innovative social program pilot projects.

Foreign currencies

Some companies, banks, governments, and other sovereign entities may decide to issue bonds in foreign currencies as it may appear to be more stable and predictable than their domestic currency. Issuing bonds denominated in foreign currencies also gives issuers the ability to access investment capital available in foreign markets. The

proceeds from the issuance of these bonds can be used by companies to break into foreign markets, or can be converted into the issuing company's local currency to be used on existing operations through the use of foreign exchange swap hedges. Foreign issuer bonds can also be used to hedge foreign exchange rate risk. Some foreign issuer bonds are called by their nicknames, such as the "samurai bond". These can be issued by foreign issuers looking to diversify their investor base away from domestic markets. These bond issues are generally governed by the law of the market of issuance, e.g., a samurai bond, issued by an investor based in Europe, will be governed by Japanese law. Not all of the following bonds are restricted for purchase by investors in the market of issuance.

- Eurodollar bond, a U.S. dollar-denominated bond issued by a non-U.S. entity outside the U.S
- Baklava bond, a bond denominated in Turkish Lira and issued by a domestic or foreign entity in the Turkish market
- Yankee bond, a US dollar-denominated bond issued by a non-US entity in the US market
- Kangaroo bond, an Australian dollar-denominated bond issued by a non-Australian entity in the Australian market
- Maple bond, a Canadian dollar-denominated bond issued by a non-Canadian entity in the Canadian market
- Masala bonds an Indian rupee denominated bond issued outside India.
- Samurai bond, a Japanese yen-denominated bond issued by a non-Japanese entity in the Japanese market
- Uridashi bond, a non-yen-denominated bond sold to Japanese retail investors.
- Shibosai Bond, a private placement bond in the Japanese market with distribution limited to institutions and banks.
- Shogun bond, a non-yen-denominated bond issued in Japan by a non-Japanese institution or government
- Bulldog bond, a pound sterling-denominated bond issued in London by a foreign institution or government.
- Matryoshka bond, a Russian rouble-denominated bond issued in the Russian Federation by non-Russian entities. The name derives from the famous Russian wooden dolls, Matrioshka, popular among foreign visitors to Russia
- Arirang bond, a Korean won-denominated bond issued by a non-Korean entity in the Korean market
- Kimchi bond, a non-Korean won-denominated bond issued by a non-Korean entity in the Korean market
- Formosa bond, a non-New Taiwan Dollar-denominated bond issued by a non-Taiwan entity in the Taiwan market

- Panda bond, a Chinese renminbi-denominated bond issued by a non-China entity in the People's Republic of China market
- Dim sum bond, a Chinese renminbi-denominated bond issued by a Chinese entity in Hong Kong. Enables foreign investors forbidden from investing in Chinese corporate debt in mainland China to invest in and be exposed to Chinese currency in Hong Kong.
- Huaso bond, a Chilean peso-denominated bond issued by a non-Chilean entity in the Chilean market.
- Lion City bond foreign currency denominated bond issued by foreign company in Singapore
- Komodo bonds, rupiah-denominated global bonds issued in Indonesia, "The Komodo dragon is a very large species of lizards found in eastern Indonesia."

Bond valuation

At the time of issue of the bond, the interest rate and other conditions of the bond will have been influenced by a variety of factors, such as current market interest rates, the length of the term and the creditworthiness of the issuer.

These factors are likely to change over time, so the market price of a bond will vary after it is issued. The market price is expressed as a percentage of nominal value. Bonds are not necessarily issued at par (100% of face value, corresponding to a price of 100), but bond prices will move towards par as they approach maturity (if the market expects the maturity payment to be made in full and on time) as this is the price the issuer will pay to redeem the bond. This is referred to as "Pull to Par". At other times, prices can be above par (bond is priced at greater than 100), which is called trading at a premium, or below par (bond is priced at less than 100), which is called trading at a discount. Most government bonds are denominated in units of $1000 in the United States, or in units of £100 in the United Kingdom. Hence, a deep discount US bond, selling at a price of 75.26, indicates a selling price of $752.60 per bond sold. (Often, in the US, bond prices are quoted in points and thirty-seconds of a point, rather than in decimal form.) Some short-term bonds, such as the U.S. Treasury bill, are always issued at a discount, and pay par amount at maturity rather than paying coupons. This is called a discount bond.

The market price of a bond is the present value of all expected future interest and principal payments of the bond discounted at the bond's yield to maturity, or rate of return. That relationship is the definition of the redemption yield on the bond, which is likely to be close to the current market interest rate for other bonds with similar characteristics. (Otherwise there would be arbitrage opportunities.) The yield and

price of a bond are inversely related so that when market interest rates rise, bond prices fall and vice versa.

The market price of a bond may be quoted including the accrued interest since the last coupon date. (Some bond markets include accrued interest in the trading price and others add it on separately when settlement is made.) The price including accrued interest is known as the "full" or "dirty price". The price excluding accrued interest is known as the "flat" or "clean price".

The interest payment ("coupon payment") divided by the current price of the bond is called the current yield (this is the nominal yield multiplied by the par value and divided by the price). There are other yield measures that exist such as the yield to first call, yield to worst, yield to first par call, yield to put, cash flow yield and yield to maturity.

The relationship between yield and term to maturity (or alternatively between yield and the weighted mean term allowing for both interest and capital repayment) for otherwise identical bonds is called a yield curve. The yield curve is a graph plotting this relationship.

Bond markets, unlike stock or share markets, sometimes do not have a centralized exchange or trading system. Rather, in most developed bond markets such as the U.S., Japan and western Europe, bonds trade in decentralized, dealer-based over-the-counter markets. In such a market, market liquidity is provided by dealers and other market participants committing risk capital to trading activity. In the bond market, when an investor buys or sells a bond, the counterparty to the trade is almost always a bank or securities firm acting as a dealer. In some cases, when a dealer buys a bond from an investor, the dealer carries the bond "in inventory", i.e. holds it for their own account. The dealer is then subject to risks of price fluctuation. In other cases, the dealer immediately resells the bond to another investor.

Bond markets can also differ from stock markets in that, in some markets, investors sometimes do not pay brokerage commissions to dealers with whom they buy or sell bonds. Rather, the dealers earn revenue by means of the spread, or difference, between the price at which the dealer buys a bond from one investor—the "bid" price—and the price at which he or she sells the same bond to another investor—the "ask" or "offer" price. The bid/offer spread represents the total transaction cost associated with transferring a bond from one investor to another.

Investing in bonds

Bonds are bought and traded mostly by institutions like central banks, sovereign wealth funds, pension funds, insurance companies, hedge funds, and banks. Insurance companies and pension funds have liabilities which essentially include fixed amounts payable on predetermined dates. They buy the bonds to match their liabilities, and may be compelled by law to do this. Most individuals who want to own bonds do so through bond funds. Still, in the U.S., nearly 10% of all bonds outstanding are held directly by households.

The volatility of bonds (especially short and medium dated bonds) is lower than that of equities (stocks). Thus, bonds are generally viewed as safer investments than stocks, but this perception is only partially correct. Bonds do suffer from less day-to-day volatility than stocks, and bonds' interest payments are sometimes higher than the general level of dividend payments. Bonds are often liquid – it is often fairly easy for an institution to sell a large quantity of bonds without affecting the price much, which may be more difficult for equities – and the comparative certainty of a fixed interest payment twice a year and a fixed lump sum at maturity is attractive. Bondholders also enjoy a measure of legal protection: under the law of most countries, if a company goes bankrupt, its bondholders will often receive some money back (the recovery amount), whereas the company's equity stock often ends up valueless. However, bonds can also be risky but less risky than stocks:

- Fixed rate bonds are subject to *interest rate risk*, meaning that their market prices will decrease in value when the generally prevailing interest rates rise. Since the payments are fixed, a decrease in the market price of the bond means an increase in its yield. When the market interest rate rises, the market price of bonds will fall, reflecting investors' ability to get a higher interest rate on their money elsewhere — perhaps by purchasing a newly issued bond that already features the newly higher interest rate. This does not affect the interest payments to the bondholder, so long-term investors who want a specific amount at the maturity date do not need to worry about price swings in their bonds and do not suffer from interest rate risk.

Bonds are also subject to various other risks such as call and prepayment risk, credit risk, reinvestment risk, liquidity risk, event risk, exchange rate risk, volatility risk, inflation risk, sovereign risk and yield curve risk. Again, some of these will only affect certain classes of investors.

Price changes in a bond will immediately affect mutual funds that hold these bonds. If the value of the bonds in their trading portfolio falls, the value of the portfolio also

falls. This can be damaging for professional investors such as banks, insurance companies, pension funds and asset managers (irrespective of whether the value is immediately "marked to market" or not). If there is any chance a holder of individual bonds may need to sell their bonds and "cash out", interest rate risk could become a real problem (conversely, bonds' market prices would increase if the prevailing interest rate were to drop, as it did from 2001 through 2003. One way to quantify the interest rate risk on a bond is in terms of its duration. Efforts to control this risk are called immunization or hedging.

- Bond prices can become volatile depending on the credit rating of the issuer – for instance if the credit rating agencies like Standard & Poor's and Moody's upgrade or downgrade the credit rating of the issuer. An unanticipated downgrade will cause the market price of the bond to fall. As with interest rate risk, this risk does not affect the bond's interest payments (provided the issuer does not actually default), but puts at risk the market price, which affects mutual funds holding these bonds, and holders of individual bonds who may have to sell them.
- A company's bondholders may lose much or all their money if the company goes bankrupt. Under the laws of many countries (including the United States and Canada), bondholders are in line to receive the proceeds of the sale of the assets of a liquidated company ahead of some other creditors. Bank lenders, deposit holders (in the case of a deposit taking institution such as a bank) and trade creditors may take precedence.

There is no guarantee of how much money will remain to repay bondholders. As an example, after an accounting scandal and a Chapter 11 bankruptcy at the giant telecommunications company Worldcom, in 2004 its bondholders ended up being paid 35.7 cents on the dollar. In a bankruptcy involving reorganization or recapitalization, as opposed to liquidation, bondholders may end up having the value of their bonds reduced, often through an exchange for a smaller number of newly issued bonds.

- Some bonds are callable, meaning that even though the company has agreed to make payments plus interest towards the debt for a certain period of time, the company can choose to pay off the bond early. This creates reinvestment risk, meaning the investor is forced to find a new place for their money, and the investor might not be able to find as good a deal, especially because this usually happens when interest rates are falling.

Bond indices

A number of bond indices exist for the purposes of managing portfolios and measuring performance, similar to the S&P 500 or Russell Indexes for stocks. The most common American benchmarks are the Barclays Capital Aggregate (ex Lehman Aggregate), Citigroup BIG and Merrill Lynch Domestic Master. Most indices are parts of families of broader indices that can be used to measure global bond portfolios, or may be further subdivided by maturity or sector for managing specialized portfolios.

Over-the-counter

Over-the-counter (**OTC**) or **off-exchange** trading is done directly between two parties, without the supervision of an exchange. It is contrasted with exchange trading, which occurs via exchanges. A stock exchange has the benefit of facilitating liquidity, providing transparency, and maintaining the current market price. In an OTC trade, the price is not necessarily published for the public.

OTC trading, as well as exchange trading, occurs with commodities, financial instruments (including stocks), and derivatives of such products. Products traded on the exchange must be well standardized. This means that exchanged deliverables match a narrow range of quantity, quality, and identity which is defined by the exchange and identical to all transactions of that product. This is necessary for there to be transparency in trading. The OTC market does not have this limitation. They may agree on an unusual quantity, for example. In OTC, market contracts are bilateral (i.e. the contract is only between two parties), and each party could have credit risk concerns with respect to the other party. The OTC derivative market is significant in some asset classes: interest rate, foreign exchange, stocks, and commodities.

In 2008 approximately 16 percent of all U.S. stock trades were "off-exchange trading"; by April 2014 that number increased to about forty percent. Although the notional amount outstanding of OTC derivatives in late 2012 had declined 3.3% over the previous year, the volume of cleared transactions at the end of 2012 totalled US$346.4 trillion. "The Bank for International Settlements statistics on OTC derivatives markets showed that notional amounts outstanding totalled $693 trillion at the end of June 2013... The gross market value of OTC derivatives – that is, the cost of replacing all outstanding contracts at current market prices – declined between end-2012 and end-June 2013, from $25 trillion to $20 trillion."

Stocks

In the United States, over-the-counter trading in stock is carried out by market makers using inter-dealer quotation services such as OTC Link (a service offered by OTC Markets Group) and the OTC Bulletin Board (OTCBB, operated by FINRA). The OTCBB licenses the services of OTC Link for their OTCBB securities. Although exchange-listed stocks can be traded OTC on the third market, it is rarely the case. Usually OTC stocks are not listed nor traded on exchanges, and vice versa. Stocks quoted on the OTCBB must comply with certain limited U.S. Securities and Exchange Commission (SEC) reporting requirements. The SEC imposes more stringent financial and reporting requirements on other OTC stocks, specifically the OTCQX stocks

(traded through the OTC Market Group Inc). Other OTC stocks have no reporting requirements, for example Pink Sheets securities and "gray market" stocks.

Some companies, with Wal-Mart as one of the largest, began trading as OTC stocks and eventually upgraded to a listing on fully regulated market. By 1969 Wal-Mart Stores Inc. was incorporated. In 1972, with stores in five states, including Arkansas, Kansas, Louisiana, Oklahoma and Missouri, Wal-Mart began trading as over-the-counter (OTC) stocks. By 1972 Walmart had earned over US$1 billion in sales — the fastest company to ever accomplish this. In 1972 Wal-Mart was listed on the New York Stock Exchange (NYSE) under the ticker symbol WMT.

Contracts

An over-the-counter is a bilateral contract in which two parties (or their brokers or bankers as intermediaries) agree on how a particular trade or agreement is to be settled in the future. It is usually from an investment bank to its clients directly. Forwards and swaps are prime examples of such contracts. It is mostly done online or by telephone. For derivatives, these agreements are usually governed by an International Swaps and Derivatives Association agreement. This segment of the OTC market is occasionally referred to as the "Fourth Market." Critics have labelled the OTC market as the "dark market" because prices are often unpublished and unregulated.

Over-the-counter derivatives are especially important for hedging risk in that they can be used to create a "perfect hedge." With exchange traded contracts, standardization does not allow for as much flexibility to hedge risk because the contract is a one-size-fits-all instrument. With OTC derivatives, though, a firm can tailor the contract specifications to best suit its risk exposure.

Counterparty risk

OTC derivatives can lead to significant risks. Especially counterparty risk has gained particular emphasis due to the credit crisis in 2007. Counterparty risk is the risk that a counterparty in a derivatives transaction will default prior to expiration of the trade and will not make the current and future payments required by the contract. There are many ways to limit counterparty risk. One of them focuses on controlling credit exposure with diversification, netting, collateralisation and hedging. Central counterparty clearing of OTC trades has become more common in recent years, with regulators placing pressure on the OTC markets to clear and display trades openly.

In their market review published in 2010 the International Swaps and Derivatives Association examined OTC Derivative Bilateral Collateralization Practice as one way of mitigating risk.

Importance of OTC derivatives in modern banking

OTC derivatives are significant part of the world of global finance. The OTC derivatives markets grew exponentially from 1980 through 2000. This expansion has been driven by interest rate products, foreign exchange instruments and credit default swaps. The notional outstanding of OTC derivatives markets rose throughout the period and totalled approximately US$601 trillion at December 31, 2010.

In their 2000 paper by Schinasi et al. published by the International Monetary Fund in 2001, the authors observed that the increase in OTC derivatives transactions would have been impossible "without the dramatic advances in information and computer technologies" that occurred from 1980 to 2000. During that time, major internationally active financial institutions significantly increased the share of their earnings from derivatives activities. These institutions manage portfolios of derivatives involving tens of thousands of positions and aggregate global turnover over $1 trillion. At that time prior to the financial crisis of 2008, the OTC market was an informal network of bilateral counterparty relationships and dynamic, time-varying credit exposures whose size and distribution tied to important asset markets. International financial institutions increasingly nurtured the ability to profit from OTC derivatives activities and financial markets participants benefitted from them. In 2000 the authors acknowledged that the growth in OTC transactions "in many ways made possible, the modernization of commercial and investment banking and the globalization of finance." However, in September, an IMF team led by Mathieson and Schinasi cautioned that "episodes of turbulence" in the late 1990s "revealed the risks posed to market stability originated in features of OTC derivatives instruments and markets.

The NYMEX has created a clearing mechanism for a slate of commonly traded OTC energy derivatives which allows counterparties of many bilateral OTC transactions to mutually agree to transfer the trade to ClearPort, the exchange's clearing house, thus eliminating credit and performance risk of the initial OTC transaction counterparts.

Short

In finance, a **short sale** (also known as **a short**, **shorting**, or **going short**) is the sale of an asset (securities or other financial instrument) that the seller does not own. The seller effects such a sale by borrowing the asset in order to deliver it to the buyer. Subsequently, the resulting short position is "covered" when the seller repurchases the asset in a market transaction and delivers the purchased asset to the lender to replace the quantity initially borrowed. In the event of an interim price decline, the short seller will profit, since the cost of (re)purchase will be less than the proceeds received upon the initial (short) sale. Conversely, the short positionwill result in a loss if the price of a shorted instrument rises prior to repurchase.

Potential loss on a short sale is theoretically unlimited, as there is no theoretical limit to a rise in the price of the instrument. However, in practice, the short seller is required to post margin or collateral to cover losses, and inability to do so in a timely way would cause its broker or counterparty to liquidate the position. In the securities markets, the seller generally must borrow the securities to effect delivery in the short sale. In some cases, the short seller must pay a fee to borrow the securities and must additionally reimburse the lender for cash returns the lender would have received had the securities not been loaned out.

Short selling is most commonly done with instruments traded in public securities, futures or currency markets, due to the liquidity and real-time price dissemination characteristic of such markets and because the instruments defined within each class are fungible.

In practical terms, "going short" can be considered the opposite of the conventional practice of "going long", whereby an investor profits from an increase in the price of the asset. Mathematically, the return from a short position is equivalent to that of owning (being "long") a negative amount of the instrument. (Nevertheless, one main discrepancy in the short against a long position is that the short position must exclude the dividends paid, if any.)

A short sale may have a variety of objectives. Speculators may sell short hoping to realize a profit on an instrument that appears overvalued, just as long investors or speculators hope to profit from a rise in the price of an instrument that appears undervalued. Traders or fund managers may hedge a long position or a portfolio through one or more short positions.

In contrast to a traditional merchant who starts out to "buy low, sell high", a short-seller starts out to "sell high, buy low", or even to "buy high, sell low" when this buy is in fact "on tick".

Research indicates that banning short selling is ineffective and has negative effects on markets.

The following example describes the short sale of a security. To profit from a decrease in the price of a security, a short seller can borrow the security and sell it expecting that it will be cheaper to repurchase in the future. When the seller decides that the time is right (or when the lender recalls the securities), the seller buys equivalent securities and returns them to the lender. The process relies on the fact that the securities (or the other assets being sold short) are fungible; the term "borrowing" is therefore used in the sense of borrowing cash, where different bank notes or coins can be returned to the lender (as opposed to borrowing a car, where the same car must be returned).

A short seller typically borrows through a broker, who is usually holding the securities for another investor who owns the securities; the broker himself seldom purchases the securities to lend to the short seller. The lender does not lose the right to sell the securities while they have been lent, as the broker usually holds a large pool of such securities for a number of investors which, as such securities are fungible, can instead be transferred to any buyer. In most market conditions there is a ready supply of securities to be borrowed, held by pension funds, mutual funds and other investors.

The act of buying back the securities that were sold short is called "covering the short" or "covering the position". A short position can be covered at any time before the securities are due to be returned. Once the position is covered, the short seller is not affected by subsequent rises or falls in the price of the securities, as he already holds the securities required to repay the lender.

Short selling refers broadly to any transaction used by an investor to profit from the decline in price of a borrowed asset or financial instrument. However some short positions, for example those undertaken by means of derivatives contracts, are not technically short sales because no underlying asset is actually delivered upon the initiation of the position. Derivatives contracts include futures, options, and swaps.

Worked examples

Profitable trade

Shares in ACME Inc. currently trade at $10 per share.

1. A short seller investor borrows from a lender 100 shares of ACME Inc. and immediately sells them for a total of $1,000.
2. Subsequently, the price of the shares falls to $8 per share.
3. Short seller now buys 100 shares of ACME Inc. for $800.
4. Short seller returns the shares to the lender, who must accept the return of the same number of shares as was lent despite the fact that the market value of the shares has decreased.
5. Short seller profits from the $200 difference (minus borrowing fees) between the price at which the short seller sold the shares, which were borrowed, and the lower price at which the short seller repurchased the shares sold.

Profitable covered trade

Shares in ACME Inc. currently trade at $10 per share.

1. A short seller investor owns 100 shares of ACME Inc. and sells them for a total of $1,000.
2. Subsequently, the price of the shares falls to $8 per share.
3. Short seller now buys 100 shares of ACME Inc. for $800, or alternatively, purchases 125 shares for $1,000.
4. Short seller retains as profit the $200 difference between the price at which the short seller sold the shares owned and the lower price at which the short seller was able to repurchase the shares.

Loss-making trade

Shares in ACME Inc. currently trade at $10 per share.

1. A short seller borrows 100 shares of ACME Inc. and immediately sells them for a total of $1,000.
2. Subsequently, the price of the shares rises to $25.
3. Short seller is required to return the shares, and is compelled to buy 100 shares of ACME Inc. for $2,500.
4. Short seller returns the shares to the lender who accepts the return of the same number of shares as was lent.
5. Short seller incurs as a loss the $1,500 difference between the price at which he sold the shares borrowed and the higher price at which the short seller had to repurchase the shares (plus borrowing fees).
6. The practice of short selling was likely invented in 1609 by Dutch businessman Isaac Le Maire, a sizeable shareholder of the Dutch East

India Company (Vereenigde Oostindische Compagnie or **VOC** in Dutch). Edward Stringham has written extensively on the development of sophisticated contracts on the Amsterdam Stock Exchange in the seventeenth century, including short sale contracts. Short selling can exert downward pressure on the underlying stock, driving down the price of shares of that security. This, combined with the seemingly complex and hard-to-follow tactics of the practice, has made short selling a historical target for criticism. At various times in history, governments have restricted or banned short selling.

7. The London banking house of Neal, James, Fordyce and Down collapsed in June 1772, precipitating a major crisis that included the collapse of almost every private bank in Scotland, and a liquidity crisis in the two major banking centres of the world, London and Amsterdam. The bank had been speculating by shorting East India Company stock on a massive scale, and apparently using customer deposits to cover losses. It was perceived as having a magnifying effect in the violent downturn in the Dutch tulip market in the eighteenth century. In another well-referenced example, George Sorosbecame notorious for "breaking the Bank of England" on Black Wednesday of 1992, when he sold short more than $10 billion worth of pounds sterling.
8. The term "short" was in use from at least the mid-nineteenth century. It is commonly understood that "short" is used because the short-seller is in a deficit position with his brokerage house. Jacob Little was known as The Great Bear of Wall Street who began shorting stocks in the United States in 1822.
9. Short sellers were blamed for the Wall Street Crash of 1929. Regulations governing short selling were implemented in the United States in 1929 and in 1940. Political fallout from the 1929 crash led Congress to enact a law banning short sellers from selling shares during a downtick; this was known as the uptick rule, and this was in effect until 3 July 2007 when it was removed by the Securities and Exchange Commission (SEC Release No. 34-55970). President Herbert Hoover condemned short sellers and even J. Edgar Hoover said he would investigate short sellers for their role in prolonging the Depression. A few years later, in 1949, Alfred Winslow Jones founded a fund (that was unregulated) that bought stocks while selling other stocks short, hence hedging some of the market risk, and the hedge fund was born.
10. Negative news, such as litigation against a company, may also entice professional traders to sell the stock short in hope of the stock price going down.
11. During the dot-com bubble, shorting a start-up company could backfire since it could be taken over at a price higher than the price at which speculators shorted. Short-sellers were forced to cover their positions at acquisition prices, while in many cases the firm often overpaid for the start-up.

12. Naked short selling restrictions
13. During the 2008 financial crisis, critics argued that investors taking large short positions in struggling financial firms like Lehman Brothers, HBOS and Morgan Stanley created instability in the stock market and placed additional downward pressure on prices. In response, a number of countries introduced restrictive regulations on short-selling in 2008 and 2009. Naked short selling is the practice of short-selling a tradable asset without first borrowing the security or ensuring that the security can be borrowed – it was this practice that was commonly restricted. Investors argued that it was the weakness of financial institutions, not short-selling, that drove stocks to fall. In September 2008, the Securities Exchange Commission in the United States abruptly banned short sales, primarily in financial stocks, to protect companies under siege in the stock market. That ban expired several weeks later as regulators determined the ban was not stabilizing the price of stocks.
14. Temporary short-selling bans were also introduced in the United Kingdom, Germany, France, Italy and other European countries in 2008 to minimal effect. Australia moved to ban naked short selling entirely in September 2008. Germany placed a ban on naked short selling of certain euro zone securities in 2010. Spain, Portugal and Italy introduced short selling bans in 2011 and again in 2012. Worldwide, economic regulators seem inclined to restrict short selling to decrease potential downward price cascades. Investors continue to argue this only contributes to market inefficiency.

Mechanism

Short selling stock consists of the following:

- The speculator instructs the broker to sell the shares and the proceeds are credited to the broker's account at the firm, on which the firm can earn interest. Generally, the short seller does not earn interest on the short proceeds and cannot use or encumber the proceeds for another transaction.
- Upon completion of the sale, the investor typically has a limited time (for example, 3 days in the US) to borrow the shares. If required by law, the investor first ensures that cash or equity is on deposit with his brokerage firm as collateral for the initial short margin requirement. Some short sellers, mainly firms and hedge funds, participate in the practice of naked short selling, where the shorted shares are not borrowed or delivered.

- The speculator may close the position by buying back the shares (called covering). If the price has dropped, he makes a profit. If the stock advanced, he takes a loss.
- Finally, the speculator may return the shares to the lender or stay short indefinitely.
- At any time, the lender may call for the return of his shares, e.g., because he wants to sell them. The borrower must buy shares on the market and return them to the lender (or he must borrow the shares from elsewhere). When the broker completes this transaction automatically, it is called a 'buy-in'.

Short selling stock works similar to buying on margin, therefore also requires a margin account as well:

Margin buying	Short selling
The buyer deposit margin into the margin account.	The seller deposit margin into the margin account.
The buyer enters an instruction to buy on margin.	The seller enters an instruction to sell short.
Within the time to delivery, the brokerage lends money using the bought security as collateral, and the stock is bought with borrowed money.	Within the time to delivery, the brokerage lends the stock, using the sale amount and deposited margin as collateral, and the borrowed stock is sold.
The buyer holds positive stock and negative cash.	The seller holds negative stock and positive cash.
The buyer pays interest on the borrowed money.	The seller pays interest on the borrowed stock.
If dividend is given out from the stock, the buyer receives it.	If dividend is given out from the stock, the seller pays it.
If the stock price drops such that the value is below maintenance margin, the buyer has to deposit additional fund to cover it, otherwise forced selling may happen.	If the stock price rises such that the value is below maintenance margin, the buyer has to deposit additional fund to cover it, otherwise forced buying may happen.
To close the position, the buyer sells the stock to repay the loan in cash, pocketing the price difference between the buying price and the selling price.	To close the position, the seller buys the stock to repay the loan in stock, pocketing the price difference between the selling price and the buying price.

Securities lending

When a security is sold, the seller is contractually obliged to deliver it to the buyer. If a seller sells a security short without owning it first, the seller must borrow the security from a third party to fulfill its obligation. Otherwise, the seller *fails to deliver,* the transaction does not settle, and the seller may be subject to a claim from its counterparty. Certain large holders of securities, such as a custodian or investment management firm, often lend out these securities to gain extra income, a process known as securities lending. The lender receives a fee for this service. Similarly, retail investors can sometimes make an extra fee when their broker wants to borrow their securities. This is only possible when the investor has full title of the security, so it cannot be used as collateral for margin buying.

Sources of short interest data

Time delayed short interest data (for *legally* shorted shares) is available in a number of countries, including the US, the UK, Hong Kong, and Spain. The number of stocks being shorted on a global basis has increased in recent years for various structural reasons (e.g., the growth of 130/30 type strategies, short or bear ETFs). The data is typically delayed; for example, the NASDAQ requires its broker-dealermember firms to report data on the 15th of each month, and then publishes a compilation eight days later.

Some market data providers (like Data Explorers and SunGard Financial Systems) believe that stock lending data provides a good proxy for short interest levels (excluding any naked short interest). SunGard provides daily data on short interest by tracking the proxy variables based on borrowing and lending data it collects.

Short selling terms

Days to Cover (DTC) is a numerical term that describes the relationship between the number of shares in a given equity that has been *legally* short-sold and the number of days of typical trading that it would require to 'cover' all legal short positions outstanding. For example, if there are ten million shares of XYZ Inc. that are currently legally short-sold and the average daily volume of XYZ shares traded each day is one million, it would require ten days of trading for all legal short positions to be covered (10 million / 1 million).

Short Interest is a numerical term that relates the number of shares in a given equity that have been legally shorted divided by the total shares outstanding for the company, usually expressed as a percent. For example, if there are ten million shares of XYZ

Inc. that are currently legally short sold, and the total number of shares issued by the company is one hundred million, the Short Interest is 10% (10 million / 100 million). If however, shares are being created through naked short selling, "fails" data must be accessed to assess accurately the true level of short interest.

Borrow cost is the fee paid to a securities lender for borrowing the stock or other security. The cost of borrowing the stock is usually negligible compared to fees paid and interest accrued on the margin account - in 2002, 91% of stocks could be shorted for less than a 1% fee per annum, generally lower than interest rates earned on the margin account. However, certain stocks become "hard to borrow" as stockholders willing to lend their stock become more difficult to locate. The cost of borrowing these stocks can become significant - in February 2001, the cost to borrow (short) Krispy Kreme stock reached an annualized 55%, indicating that a short seller would need to pay the lender more than half the price of the stock over the course of the year, essentially as interest for borrowing a stock in limited supply. This has important implications for derivatives pricing and strategy, as the borrow cost itself can become a significant convenience yield for holding the stock (similar to additional dividend) - for instance, put-call parity relationships are broken and the early exercise feature of American call options on non-dividend paying stocks can become rational to exercise early, which otherwise would not be economical.

Major lenders

- State Street Corporation (Boston, United States)
- Merrill Lynch (New Jersey, United States)
- JP Morgan Chase (New York, United States)
- Northern Trust (Chicago, United States)
- Fortis (Amsterdam, Netherlands, now defunct)
- ABN AMRO (Amsterdam, Netherlands, formerly Fortis)
- Citibank (New York, United States)
- Bank of New York Mellon Corporation (New York, United States)
- UBS AG (Zurich, Switzerland)
- Barclays (London, United Kingdom)

Naked short selling

A naked short sale occurs when a security is sold short without borrowing the security within a set time (for example, three days in the US.) This means that the buyer of

such a short is buying the short-seller's promise to deliver a share, rather than buying the share itself. The short-seller's promise is known as a hypothecated share.

When the holder of the underlying stock receives a dividend, the holder of the hypothecated share would receive an equal dividend from the short seller.

Naked shorting has been made illegal except where allowed under limited circumstances by market makers. It is detected by the Depository Trust & Clearing Corporation (in the US) as a "failure to deliver" or simply "fail." While many fails are settled in a short time, some have been allowed to linger in the system.

In the US, arranging to borrow a security before a short sale is called a *locate*. In 2005, to prevent widespread failure to deliver securities, the U.S. Securities and Exchange Commission (SEC) put in place Regulation SHO, intended to prevent speculators from selling some stocks short before doing a locate. Requirements that are more stringent were put in place in September 2008, ostensibly to prevent the practice from exacerbating market declines. The rules were made permanent in 2009.

Fees

When a broker facilitates the delivery of a client's short sale, the client is charged a fee for this service, usually a standard commission similar to that of purchasing a similar security.

If the short position begins to move against the holder of the short position (i.e., the price of the security begins to rise), money is removed from the holder's cash balance and moved to their margin balance. If short shares continue to rise in price, and the holder does not have sufficient funds in the cash account to cover the position, the holder begins to borrow on margin for this purpose, thereby accruing margin interest charges. These are computed and charged just as for any other margin debit. Therefore, only margin accounts can be used to open a short position.

When a security's ex-dividend date passes, the dividend is deducted from the shortholder's account and paid to the person from whom the stock is borrowed.

For some brokers, the short seller may not earn interest on the proceeds of the short sale or use it to reduce outstanding margin debt. These brokers may not pass this benefit on to the retail client unless the client is very large. The interest is often split with the lender of the security.

Dividends and voting rights

Where shares have been shorted and the company that issues the shares distributes a dividend, the question arises as to who receives the dividend. The new buyer of the shares, who is the *holder of record* and holds the shares outright, receives the dividend from the company. However, the lender, who may hold its shares in a margin account with a prime broker and is unlikely to be aware that these particular shares are being lent out for shorting, also expects to receive a dividend. The short seller therefore pays the lender an amount equal to the dividend to compensate—though technically, as this payment does not come from the company, it is not a dividend. The short seller is therefore said to be *short the dividend*.

A similar issue comes up with the voting rights attached to the shorted shares. Unlike a dividend, voting rights cannot legally be synthesized and so the buyer of the shorted share, as the holder of record, controls the voting rights. The owner of a margin account from which the shares were lent agreed in advance to relinquish voting rights to shares during the period of any short sale.

As noted earlier, victims of naked shorting sometimes report that the number of votes cast is greater than the number of shares issued by the company.

Markets

Futures and options contracts

When trading futures contracts, being 'short' means having the legal obligation to deliver something at the expiration of the contract, although the holder of the short position may alternately buy back the contract prior to expiration instead of making delivery. Short futures transactions are often used by producers of a commodity to fix the future price of goods they have not yet produced. Shorting a futures contract is sometimes also used by those holding the underlying asset (i.e. those with a long position) as a temporary hedge against price declines. Shorting futures may also be used for speculative trades, in which case the investor is looking to profit from any decline in the price of the futures contract prior to expiration.

An investor can also purchase a put option, giving that investor the right (but not the obligation) to sell the underlying asset (such as shares of stock) at a fixed price. In the event of a market decline, the option holder may exercise these put options, obliging the counterparty to buy the underlying asset at the agreed upon (or "strike") price, which would then be higher than the current quoted spot price of the asset.

Currency

Selling short on the currency markets is different from selling short on the stock markets. Currencies are traded in pairs, each currency being priced in terms of another. In this way, selling short on the currency markets is identical to going long on stocks.

Novice traders or stock traders can be confused by the failure to recognize and understand this point: a contract is always long in terms of one medium and short another.

When the exchange rate has changed, the trader buys the first currency again; this time he gets more of it, and pays back the loan. Since he got more money than he had borrowed initially, he makes money. Of course, the reverse can also occur.

An example of this is as follows: Let us say a trader wants to trade with the US dollar and the Indian rupee currencies. Assume that the current market rate is USD 1 to Rs.50 and the trader borrows Rs.100. With this, he buys USD 2. If the next day, the conversion rate becomes USD 1 to Rs.51, then the trader sells his USD 2 and gets Rs.102. He returns Rs.100 and keeps the Rs.2 profit (minus fees).

One may also take a short position in a currency using futures or options; the preceding method is used to bet on the spot price, which is more directly analogous to selling a stock short.

Risks

Short selling is sometimes referred to as a "negative income investment strategy" because there is no potential for dividend income or interest income. Stock is held only long enough to be sold pursuant to the contract, and one's return is therefore limited to short term capital gains, which are taxed as ordinary income. For this reason, buying shares (called "going long") has a very different risk profile from selling short. Furthermore, a "long's" losses are limited because the price can only go down to zero, but gains are not, as there is no limit, in theory, on how high the price can go. On the other hand, the short seller's possible gains are limited to the original price of the stock, which can only go down to zero, whereas the loss potential, again in theory, has no limit. For this reason, short selling probably is most often used as a hedge strategy to manage the risks of long investments.

Many short sellers place a *stop order* with their stockbroker after selling a stock short—an order to the brokerage to cover the position if the price of the stock should rise to a certain level. This is to limit the loss and avoid the problem of unlimited

liability described above. In some cases, if the stock's price skyrockets, the stockbroker may decide to cover the short seller's position immediately and without his consent to guarantee that the short seller can make good on his debt of shares.

Short sellers must be aware of the potential for a short squeeze. When the price of a stock rises significantly, some people who are shorting the stock cover their positions to limit their losses (this may occur in an automated way if the short sellers had stop-loss orders in place with their brokers); others may be forced to close their position to meet a margin call; others may be forced to cover, subject to the terms under which they borrowed the stock, if the person who lent the stock wishes to sell and take a profit. Since covering their positions involves buying shares, the short squeeze causes an ever further rise in the stock's price, which in turn may trigger additional covering. Because of this, most short sellers restrict their activities to heavily traded stocks, and they keep an eye on the "short interest" levels of their short investments. Short interest is defined as the total number of shares that have been *legally* sold short, but not covered. A short squeeze can be deliberately induced. This can happen when large investors (such as companies or wealthy individuals) notice significant short positions, and buy many shares, with the intent of selling the position at a profit to the short sellers, who may be panicked by the initial uptick or who are forced to cover their short positions to avoid margin calls.

Another risk is that a given stock may become "hard to borrow." As defined by the SEC and based on lack of availability, a broker may charge a hard to borrow fee daily, without notice, for any day that the SEC declares a share is hard to borrow. Additionally, a broker may be required to cover a short seller's position at any time ("buy in"). The short seller receives a warning from the broker that he is "failing to deliver" stock, which leads to the buy-in.

Because short sellers must eventually deliver the shorted securities to their broker, and need money to buy them, there is a credit risk for the broker. The penalties for failure to deliver on a short selling contract inspired financier Daniel Drew to warn: "He who sells what isn't his'n, Must buy it back or go to pris'n." To manage its own risk, the broker requires the short seller to keep a margin account, and charges interest of between 2% and 8% depending on the amounts involved.

In 2011, the eruption of the massive China stock frauds on North American equity markets brought a related risk to light for the short seller. The efforts of research-oriented short sellers to expose these frauds eventually prompted NASDAQ, NYSE and other exchanges to impose sudden, lengthy trading halts that froze the values of shorted stocks at artificially high values. Reportedly in some instances, brokers charged short sellers excessively large amounts of interest based on these high values

as the shorts were forced to continue their borrowings at least until the halts were lifted.

Short sellers tend to temper overvaluation by selling into exuberance. Likewise, short sellers are said to provide price support by buying when negative sentiment is exacerbated after a significant price decline. Short selling can have negative implications if it causes a premature or unjustified share price collapse when the fear of cancellation due to bankruptcy becomes contagious.

Strategies

Hedging

Hedging often represents a means of minimizing the risk from a more complex set of transactions. Examples of this are:

- A farmer who has just planted his wheat wants to lock in the price at which he can sell after the harvest. He would take a short position in wheat futures.
- A market maker in corporate bonds is constantly trading bonds when clients want to buy or sell. This can create substantial bond positions. The largest risk is that interest rates overall move. The trader can hedge this risk by selling government bonds short against his long positions in corporate bonds. In this way, the risk that remains is credit risk of the corporate bonds.
- An options trader may short shares to remain delta neutral so that he is not exposed to risk from price movements in the stocks that underlie his options

Arbitrage

A short seller may be trying to benefit from market inefficiencies arising from the mispricing of certain products. Examples of this are

- An arbitrageur who buys long futures contracts on a US Treasury security, and sells short the underlying US Treasury security.

Against the box

One variant of selling short involves a long position. "Selling short against the box" consists of holding a long position on which the shares have already risen, whereupon one then enters a short sell order for an equal number of shares. The term *box* alludes to the days when a safe deposit box was used to store (long) shares. The purpose of this technique is to lock in paper profits on the long position without having to sell that position (and possibly incur taxes if said position has appreciated). Once the short

position has been entered, it serves to balance the long position taken earlier. Thus, from that point in time, the profit is locked in (less brokerage fees and short financing costs), regardless of further fluctuations in the underlying share price. For example, one can ensure a profit in this way, while delaying sale until the subsequent tax year.

U.S. investors considering entering into a "short against the box" transaction should be aware of the tax consequences of this transaction. Unless certain conditions are met, the IRS deems a "short against the box" position to be a "constructive sale" of the long position, which is a taxable event. These conditions include a requirement that the short position be closed out within 30 days of the end of the year and that the investor must hold their long position, without entering into any hedging strategies, for a minimum of 60 days after the short position has been closed.

Regulations

United States

The Securities and Exchange Act of 1934 gave the Securities and Exchange Commission the power to regulate short sales. The first official restriction on short selling came in 1938, when the SEC adopted a rule known as the uptick rule that dictated that a short sale could only be made when the price of a particular stock was higher than the previous trade price. The uptick rule aimed to prevent short sales from causing or exacerbating market price declines. In January 2005, The Securities and Exchange Commission enacted Regulation SHO to target abusive naked short selling. Regulation SHO was the SEC's first update to short selling restrictions since the uptick rule in 1938.

The regulation contains two key components: the "locate" and the "close-out." The locate component attempts to reduce failure to deliver securities by requiring a broker possess or have arranged to possess borrowed shares. The close out component requires that a broker be able to deliver the shares that are to be shorted. In the US, initial public offers (IPOs) cannot be sold short for a month after they start trading. This mechanism is in place to ensure a degree of price stability during a company's initial trading period. However, some brokerage firms that specialize in penny stocks (referred to colloquially as bucket shops) have used the lack of short selling during this month to pump and dump thinly traded IPOs. Canada and other countries do allow selling IPOs (including U.S. IPOs) short.

The Securities and Exchange Commission initiated a temporary ban on short selling on 799 financial stocks from 19 September 2008 until 2 October 2008. Greater penalties for naked shorting, by mandating delivery of stocks at clearing time, were also introduced. Some state governors have been urging state pension bodies to refrain

from lending stock for shorting purposes. An assessment of the effect of the temporary ban on short-selling in the United States and other countries in the wake of the financial crisis showed that it had only "little impact" on the movements of stocks, with stock prices moving in the same way as they would have moved anyhow, but the ban reduced volume and liquidity.

Europe, Australia and China

In the UK, the Financial Services Authority had a moratorium on short selling 29 leading financial stocks, effective from 2300 GMT, 19 September 2008 until 16 January 2009. After the ban was lifted, John McFall, chairman of the Treasury Select Committee, House of Commons, made clear in public statements and a letter to the FSA that he believed it ought to be extended. Between 19 and 21 September 2008, Australia temporarily banned short selling, and later placed an indefinite ban on naked short selling. Australia's ban on short selling was further extended for another 28 days on 21 October 2008. Also during September 2008, Germany, Ireland, Switzerland and Canada banned short selling leading financial stocks, and France, the Netherlands and Belgium banned naked short selling leading financial stocks. By contrast with the approach taken by other countries, Chinese regulators responded by allowing short selling, along with a package of other market reforms.

Views of short selling

Advocates of short selling argue that the practice is an essential part of the price discovery mechanism. Financial researchers at Duke University said in a study that short interest is an indicator of poor future stock performance (the self-fulfilling aspect) and that short sellers exploit market mistakes about firms' fundamentals.

Such noted investors as Seth Klarman and Warren Buffett have said that short sellers help the market. Klarman argued that short sellers are a useful counterweight to the widespread bullishness on Wall Street, while Buffett believes that short sellers are useful in uncovering fraudulent accounting and other problems at companies.

Shortseller James Chanos received widespread publicity when he was an early critic of the accounting practices of Enron. Chanos responds to critics of short-selling by pointing to the critical role they played in identifying problems at Enron, Boston Market and other "financial disasters" over the years. In 2011, research oriented short sellers were widely acknowledged for exposing the China stock frauds.

Commentator Jim Cramer has expressed concern about short selling and started a petition calling for the reintroduction of the uptick rule. Books like *Don't Blame the*

Shorts by Robert Sloan and *Fubarnomics* by Robert E. Wright suggest Cramer exaggerated the costs of short selling and underestimated the benefits, which may include the ex ante identification of asset bubbles.

Individual short sellers have been subject to criticism and even litigation. Manuel P. Asensio, for example, engaged in a lengthy legal battle with the pharmaceutical manufacturer Hemispherx Biopharma.

Several studies of the effectiveness of short selling bans indicate that short selling bans do not contribute to more moderate market dynamics.

Security

A **security** is a tradable financial asset. The term commonly refers to any form of financial instrument, but its legal definition varies by jurisdiction. In some jurisdictions the term specifically excludes financial instruments other than equities and fixed income instruments. In some jurisdictions it includes some instruments that are close to equities and fixed income, e.g., equity warrants. In some countries and languages the term "security" is commonly used in day-to-day parlance to mean any form of financial instrument, even though the underlying legal and regulatory regime may not have such a broad definition.

In the United Kingdom, the national competent authority for financial markets regulation is the Financial Conduct Authority; the definition in its Handbook of the term "security" applies only to equities, debentures, alternative debentures, government and public securities, warrants, certificates representing certain securities, units, stakeholder pension schemes, personal pension schemes, rights to or interests in investments, and anything that may be admitted to the Official List.

In the United States, a **security** is a tradable financial asset of any kind. Securities are broadly categorized into:

- debt securities (e.g., banknotes, bonds and debentures)
- equity securities (e.g., common stocks)
- derivatives (e.g., forwards, futures, options, and swaps).

The company or other entity issuing the security is called the issuer. A country's regulatory structure determines what qualifies as a security. For example, private investment pools may have some features of securities, but they may not be registered or regulated as such if they meet various restrictions.

Securities may be represented by a certificate or, more typically, "non-certificated", that is in electronic (dematerialized) or "book entry" only form. Certificates may be *bearer*, meaning they entitle the holder to rights under the security merely by holding the security, or *registered*, meaning they entitle the holder to rights only if he or she appears on a security register maintained by the issuer or an intermediary. They include shares of corporate stock or mutual funds, bonds issued by corporations or governmental agencies, stock options or other options, limited partnership units, and various other formal investment instruments that are negotiable and fungible.

Classification

Securities may be classified according to many categories or classification systems:

- Currency of denomination
- Ownership rights
- Terms to maturity
- Degree of liquidity
- Income payments
- Tax treatment
- Credit rating
- Industrial sector or "industry". ("Sector" often refers to a higher level or broader category, such as *Consumer Discretionary*, whereas "industry" often refers to a lower level classification, such as *Consumer Appliances*.
- Region or country (such as country of incorporation, country of principal sales/market of its products or services, or country in which the principal securities exchange where it trades is located)
- Market capitalization
- State (typically for municipal or "tax-free" bonds in the US)

New capital

Securities are the traditional way that commercial enterprises raise new capital. These may be an attractive alternative to bank loans depending on their pricing and market demand for particular characteristics. Another disadvantage of bank loans as a source of financing is that the bank may seek a measure of protection against default by the borrower via extensive financial covenants. Through securities, capital is provided by investors who purchase the securities upon their initial issuance. In a similar way, a government may issue securities too when it needs to increase government debt.

Type of holder

Investors in securities may be retail, i.e., members of the public investing other than by way of business. The greatest part of investment, in terms of volume, is wholesale, i.e., by financial institutions acting on their own account, or on behalf of clients. Important institutional investors include investment
banks, insurance companies, pension funds and other managed funds.

Investment

The traditional economic function of the purchase of securities is investment, with the view to receiving income or achieving capital gain. Debt securities generally offer a higher rate of interest than bank deposits, and equities may offer the prospect of capital growth. Equity investment may also offer control of the business of the issuer. Debt holdings may also offer some measure of control to the investor if the company is a fledgling start-up or an old giant undergoing 'restructuring'. In these cases, if interest payments are missed, the creditors may take control of the company and liquidate it to recover some of their investment.

Collateral

The last decade has seen an enormous growth in the use of securities as collateral. Purchasing securities with borrowed money secured by other securities or cash itself is called "buying on margin". Where A is owed a debt or other obligation by B, A may require B to deliver property rights in securities to A, either at inception (transfer of title) or only in default (non-transfer-of-title institutional). For institutional loans, property rights are not transferred but nevertheless enable A to satisfy its claims in the event that B fails to make good on its obligations to A or otherwise becomes insolvent. Collateral arrangements are divided into two broad categories, namely security interests and outright collateral transfers. Commonly, commercial banks, investment banks, government agencies and other institutional investors such as mutual funds are significant collateral takers as well as providers. In addition, private parties may utilize stocks or other securities as collateral for portfolio loans in securities lending scenarios.

On the consumer level, loans against securities have grown into three distinct groups over the last decade: **1)** *Standard Institutional Loans,* generally offering low loan-to-value with very strict call and coverage regimens, akin to standard margin loans; **2)** *Transfer-of-Title (ToT) Loans*, typically provided by private parties where borrower ownership is completely extinguished save for the rights provided in the loan contract; and **3)** Non-Transfer-of-Title Credit Line facilities where shares are not sold and they serve as assets in a standard lien-type line of cash credit. Of the three, transfer-of-title loans have fallen into the very high-risk category as the number of providers has dwindled as regulators have launched an industry-wide crackdown on transfer-of-title structures where the private lender may sell or sell short the securities to fund the loan. Institutionally managed consumer securities-based loans, on the other hand, draw loan funds from the financial resources of the lending institution, not from the sale of the securities.

Collateral and sources of collateral are changing, in 2012 gold became a more acceptable form of collateral. However more recently Exchange-traded funds (ETFs) seen by many as the ugly ducklings of the collateral world have started to become more readily available and acceptable. But in a world where collateral is becoming scarce and efficiency is everything, many of these mallards are proving themselves to be not so ugly after all—many more are veritable swans. The problem, until now, for collateral managers has been deciphering the bad eggs from the good, which proves to be a time consuming and inefficient task.

Debt

Debt securities may be called debentures, bonds, deposits, notes or commercial paper depending on their maturity, collateral and other characteristics. The holder of a debt security is typically entitled to the payment of principal and interest, together with other contractual rights under the terms of the issue, such as the right to receive certain information. Debt securities are generally issued for a fixed term and redeemable by the issuer at the end of that term. Debt securities may be protected by collateral or may be unsecured, and, if they are unsecured, may be contractually "senior" to other unsecured debt meaning their holders would have a priority in a bankruptcy of the issuer. Debt that is not senior is "subordinated".

Corporate bonds represent the debt of commercial or industrial entities. Debentures have a long maturity, typically at least ten years, whereas notes have a shorter maturity. Commercial paper is a simple form of debt security that essentially represents a post-dated cheque with a maturity of not more than 270 days.

Money market instruments are short term debt instruments that may have characteristics of deposit accounts, such as certificates of deposit, Accelerated Return Notes (ARN), and certain bills of exchange. They are highly liquid and are sometimes referred to as "near cash". Commercial paper is also often highly liquid.

Euro debt securities are securities issued internationally outside their domestic market in a denomination different from that of the issuer's domicile. They include eurobonds and euronotes. Eurobonds are characteristically underwritten, and not secured, and interest is paid gross. A euronote may take the form of euro-commercial paper (ECP) or euro-certificates of deposit.

Government bonds are medium or long term debt securities issued by sovereign governments or their agencies. Typically they carry a lower rate of interest than corporate bonds, and serve as a source of finance for governments. U.S. federal government bonds are called *treasuries.* Because of their liquidity and perceived low

risk, treasuries are used to manage the money supply in the open market operationsof non-US central banks.

Sub-sovereign government bonds, known in the U.S. as municipal bonds, represent the debt of state, provincial, territorial, municipal or other governmental units other than sovereign governments.

Supranational bonds represent the debt of international organizations such as the World Bank , the International Monetary Fund , regional multilateral development banks and others.

Equity

An equity security is a share of equity interest in an entity such as the capital stock of a company, trust or partnership. The most common form of equity interest is common stock, although preferred equity is also a form of capital stock. The holder of an equity is a shareholder, owning a share, or fractional part of the issuer. Unlike debt securities, which typically require regular payments (interest) to the holder, equity securities are not entitled to any payment. In bankruptcy, they share only in the residual interest of the issuer after all obligations have been paid out to creditors. However, equity generally entitles the holder to a pro rata portion of control of the company, meaning that a holder of a majority of the equity is usually entitled to control the issuer. Equity also enjoys the right to profits and capital gain, whereas holders of debt securities receive only interest and repayment of principal regardless of how well the issuer performs financially. Furthermore, debt securities do not have voting rights outside of bankruptcy. In other words, equity holders are entitled to the "upside" of the business and to control the business.

Hybrid

Hybrid securities combine some of the characteristics of both debt and equity securities.

Preference shares form an intermediate class of security between equities and debt. If the issuer is liquidated, they carry the right to receive interest or a return of capital in priority to ordinary shareholders. However, from a legal perspective, they are capital stock and therefore may entitle holders to some degree of control depending on whether they contain voting rights.

Convertibles are bonds or preferred stock that can be converted, at the election of the holder of the convertibles, into the common stock of the issuing company. The convertibility, however, may be forced if the convertible is a callable bond, and the

issuer calls the bond. The bondholder has about 1 month to convert it, or the company will call the bond by giving the holder the call price, which may be less than the value of the converted stock. This is referred to as a forced conversion.

Equity warrants are options issued by the company that allow the holder of the warrant to purchase a specific number of shares at a specified price within a specified time. They are often issued together with bonds or existing equities, and are, sometimes, detachable from them and separately tradeable. When the holder of the warrant exercises it, he pays the money directly to the company, and the company issues new shares to the holder.

Warrants, like other convertible securities, increases the number of shares outstanding, and are always accounted for in financial reports as fully diluted earnings per share, which assumes that all warrants and convertibles will be exercised.

Markets

Primary and secondary market

Public securities markets are either primary or secondary markets. In the primary market, the money for the securities is received by the issuer of the securities from investors, typically in an initial public offering (IPO). In the secondary market, the securities are simply assets held by one investor selling them to another investor, with the money going from one investor to the other.

An initial public offering is when a company issues public stock newly to investors, called an "IPO" for short. A company can later issue more new shares, or issue shares that have been previously registered in a shelf registration. These later new issues are also sold in the primary market, but they are not considered to be an IPO but are often called a "secondary offering". Issuers usually retain investment banks to assist them in administering the IPO, obtaining SEC (or other regulatory body) approval of the offering filing, and selling the new issue. When the investment bank buys the entire new issue from the issuer at a discount to resell it at a markup, it is called a firm commitment underwriting. However, if the investment bank considers the risk too great for an underwriting, it may only assent to a best effort agreement, where the investment bank will simply do its best to sell the new issue.

For the primary market to thrive, there must be a secondary market, or aftermarket that provides liquidity for the investment security—where holders of securities can sell them to other investors for cash. Otherwise, few people would purchase primary issues, and, thus, companies and governments would be restricted in raising equity capital (money) for their operations. Organized exchanges constitute the main

secondary markets. Many smaller issues and most debt securities trade in the decentralized, dealer-based over-the-counter markets.

In Europe, the principal trade organization for securities dealers is the International Capital Market Association. In the U.S., the principal trade organization for securities dealers is the Securities Industry and Financial Markets Association, which is the result of the merger of the Securities Industry Association and the Bond Market Association. The Financial Information Services Division of the Software and Information Industry Association (FISD/SIIA) represents a round-table of market data industry firms, referring to them as Consumers, Exchanges, and Vendors. In India the equivalent organisation is the securities exchange board of India (SEBI).

Public offer and private placement

In the primary markets, securities may be offered to the public in a public offer. Alternatively, they may be offered privately to a limited number of qualified persons in a private placement. Sometimes a combination of the two is used. The distinction between the two is important to securities regulation and company law. Privately placed securities are not publicly tradable and may only be bought and sold by sophisticated qualified investors. As a result, the secondary market is not nearly as liquid as it is for public (registered) securities.

Another category, sovereign bonds, is generally sold by auction to a specialized class of dealers.

Listing and over-the-counter dealing

Securities are often listed in a stock exchange, an organized and officially recognized market on which securities can be bought and sold. Issuers may seek listings for their securities to attract investors, by ensuring there is a liquid and regulated market that investors can buy and sell securities in.

Growth in informal electronic trading systems has challenged the traditional business of stock exchanges. Large volumes of securities are also bought and sold "over the counter" (OTC). OTC dealing involves buyers and sellers dealing with each other by telephone or electronically on the basis of prices that are displayed electronically, usually by financial data vendors such as SuperDerivatives, Reuters, Investing.com and Bloomberg.

There are also eurosecurities, which are securities that are issued outside their domestic market into more than one jurisdiction. They are generally listed on

the Luxembourg Stock Exchange or admitted to listing in London. The reasons for listing eurobonds include regulatory and tax considerations, as well as the investment restrictions.

Market

London is the centre of the eurosecurities markets. There was a huge rise in the eurosecurities market in London in the early 1980s. Settlement of trades in eurosecurities is currently effected through two European computerized clearing/depositories called Euroclear (in Belgium) and Clearstream (formerly Cedelbank) in Luxembourg.

The main market for Eurobonds is the EuroMTS, owned by Borsa Italiana and Euronext. There are ramp up market in Emergent countries, but it is growing slowly.

Physical nature

Certificated securities

Securities that are represented in paper (physical) form are called certificated securities. They may be *bearer* or *registered*.

DRS securities

Securities may also be held in the Direct Registration System (DRS), which is a method of recording shares of stock in book-entry form. Book-entry means the company's transfer agent maintains the shares on the owner's behalf without the need for physical share certificates. Shares held in un-certificated book-entry form have the same rights and privileges as shares held in certificated form.

Bearer securities

Bearer securities are completely negotiable and entitle the holder to the rights under the security (e.g., to payment if it is a debt security, and voting if it is an equity security). They are transferred by delivering the instrument from person to person. In some cases, transfer is by endorsement, or signing the back of the instrument, and delivery.

Regulatory and fiscal authorities sometimes regard bearer securities negatively, as they may be used to facilitate the evasion of regulatory restrictions and tax. In the United Kingdom, for example, the issue of bearer securities was heavily restricted firstly by the *Exchange Control Act* 1947 until 1953. Bearer securities are very rare in

the United States because of the negative tax implications they may have to the issuer and holder.

In Luxembourg, the law of 28 July 2014 concerning the compulsory deposit and immobilization of shares and units in bearer form adopts the compulsory deposit and immobilization of bearer shares and units with a depositary allowing identification of the holders thereof.

Registered securities

In the case of registered securities, certificates bearing the name of the holder are issued, but these merely represent the securities. A person does not automatically acquire legal ownership by having possession of the certificate. Instead, the issuer (or its appointed agent) maintains a register in which details of the holder of the securities are entered and updated as appropriate. A transfer of registered securities is effected by amending the register.

Non-certificated securities and global certificates

Modern practice has developed to eliminate both the need for certificates and maintenance of a complete security register by the issuer. There are two general ways this has been accomplished.

Non-certificated securities

In some jurisdictions, such as France, it is possible for issuers of that jurisdiction to maintain a legal record of their securities electronically.

In the United States, the current "official" version of Article 8 of the Uniform Commercial Code permits non-certificated securities. However, the "official" UCC is a mere draft that must be enacted individually by each U.S. state. Though all 50 states (as well as the District of Columbia and the U.S. Virgin Islands) have enacted some form of Article 8, many of them still appear to use older versions of Article 8, including some that did not permit non-certificated securities.

Global certificates, book entry interests, depositories

To facilitate the electronic transfer of interests in securities without dealing with inconsistent versions of Article 8, a system has developed whereby issuers deposit a single global certificate representing all the outstanding securities of a class or series with a universal depository. This depository is called The Depository Trust Company, or DTC. DTC's parent, Depository Trust & Clearing Corporation (DTCC), is a non-

profit cooperative owned by approximately thirty of the largest Wall Street players that typically act as brokers or dealers in securities. These thirty banks are called the DTC participants. DTC, through a legal nominee, owns each of the global securities on behalf of all the DTC participants.

All securities traded through DTC are in fact held, in electronic form, on the books of various intermediaries between the ultimate owner, e.g., a retail investor, and the DTC participants. For example, Mr. Smith may hold 100 shares of Coca-Cola, Inc. in his brokerage account at local broker Jones & Co. brokers. In turn, Jones & Co. may hold 1000 shares of Coca-Cola on behalf of Mr. Smith and nine other customers. These 1000 shares are held by Jones & Co. in an account with Goldman Sachs, a DTC participant, or in an account at another DTC participant. Goldman Sachs in turn may hold millions of Coca-Cola shares on its books on behalf of hundreds of brokers similar to Jones & Co. Each day, the DTC participants settle their accounts with the other DTC participants and adjust the number of shares held on their books for the benefit of customers like Jones & Co. Ownership of securities in this fashion is called beneficial ownership. Each intermediary holds on behalf of someone beneath him in the chain. The ultimate owner is called the beneficial owner. This is also referred to as owning in "Street name".

Among brokerages and mutual fund companies, a large amount of mutual fund share transactions take place among intermediaries as opposed to shares being sold and redeemed directly with the transfer agent of the fund. Most of these intermediaries such as brokerage firms clear the shares electronically through the National Securities Clearing Corp. or "NSCC", a subsidiary of DTCC.

Other depositories

Besides DTC, two other large securities depositories exist, both in Europe: Euroclear and Clearstream.

Divided and undivided security

The terms "divided" and "undivided" relate to the proprietary nature of a security.

Each divided security constitutes a separate asset, which is legally distinct from each other security in the same issue. Pre-electronic bearer securities were divided. Each instrument constitutes the separate covenant of the issuer and is a separate debt.

With undivided securities, the entire issue makes up one single asset, with each of the securities being a fractional part of this undivided whole. Shares in the secondary markets are always undivided. The issuer owes only one set of obligations to

shareholders under its memorandum, articles of association and company law.
A share represents an undivided fractional part of the issuing company. Registered debt securities also have this undivided nature.

Fungible and non-fungible securities

If a security is non-fungible, this means certain characteristics of the owner are checked for when they use a feature of the security and affects how they can use that feature. For example, a bond may have a different maturation date depending on what countries its owner is a citizen of.

If a security is fungible, this means the rules of the security aren't affected by judgements made about the owner.

Regulation

In the US, the public offer and sale of securities must be either registered pursuant to a registration statement that is filed with the U.S. Securities and Exchange Commission (SEC) or are offered and sold pursuant to an exemption therefrom. Dealing in securities is regulated by both federal authorities (SEC) and state securities departments. In addition, the brokerage industry is supposedly self policed by Self Regulatory Organizations (SROs), such as the Financial Industry Regulatory Authority (FINRA), formerly the National Association of Securities Dealers (or NASD) or the MSRB.

With respect to investment schemes that do not fall within the traditional categories of securities listed in the definition of a security (Sec. 2(a)(1) of the 33 act and Sec. 3(a)(10) of the 34 act) the US Courts have developed a broad definition for securities that must then be registered with the SEC. When determining if there is an "investment contract" that must be registered the courts look for an investment of money, a common enterprise and expectation of profits to come primarily from the efforts of others.

Derivative

In finance, a **derivative** is a contract that *derives* its value from the performance of an underlying entity. This underlying entity can be an asset, index, or interest rate, and is often simply called the "underlying". Derivatives can be used for a number of purposes, including insuring against price movements (hedging), increasing exposure to price movements for speculation or getting access to otherwise hard-to-trade assets or markets. Some of the more common derivatives include forwards, futures, options, swaps, and variations of these such as synthetic collateralized debt obligations and credit default swaps. Most derivatives are traded over-the-counter (off-exchange) or on an exchange such as the New York Stock Exchange, while most insurance contracts have developed into a separate industry. In the United States, after the financial crisis of 2007–2009, there has been increased pressure to move derivatives to trade on exchanges. Derivatives are one of the three main categories of financial instruments, the other two being stocks (i.e., equities or shares) and debt (i.e., bonds and mortgages). The oldest example of a derivative in history is thought to be a contract transaction of olives, entered into by ancient Greek philosopher Thales, and attested to by Aristotle, who made a profit in the exchange. Bucket shops, outlawed a century ago, are a more recent historical example.

Derivatives are contracts between two parties that specify conditions (especially the dates, resulting values and definitions of the underlying variables, the parties' contractual obligations, and the notional amount) under which payments are to be made between the parties. The assets include commodities, stocks, bonds, interest rates and currencies, but they can also be other derivatives, which adds another layer of complexity to proper valuation. The components of a firm's capital structure, e.g., bonds and stock, can also be considered derivatives, more precisely options, with the underlying being the firm's assets, but this is unusual outside of technical contexts.

From the economic point of view, financial derivatives are cash flows, that are conditioned stochastically and discounted to present value. The market risk inherent in the underlying asset is attached to the financial derivative through contractual agreements and hence can be traded separately. The underlying asset does not have to be acquired. Derivatives therefore allow the breakup of ownership and participation in the market value of an asset. This also provides a considerable amount of freedom regarding the contract design. That contractual freedom allows to modify the participation in the performance of the underlying asset almost arbitrarily. Thus, the participation in the market value of the underlying can be effectively weaker, stronger (leverage effect), or implemented as inverse. Hence, specifically the market price risk of the underlying asset can be controlled in almost every situation.

There are two groups of derivative contracts: the privately traded over-the-counter (OTC) derivatives such as swaps that do not go through an exchange or other intermediary, and exchange-traded derivatives(ETD) that are traded through specialized derivatives exchanges or other exchanges.

Derivatives are more common in the modern era, but their origins trace back several centuries. One of the oldest derivatives is rice futures, which have been traded on the Dojima Rice Exchange since the eighteenth century. Derivatives are broadly categorized by the relationship between the underlying asset and the derivative (such as forward, option, swap); the type of underlying asset (such as equity derivatives, foreign exchange derivatives, interest rate derivatives, commodity derivatives, or credit derivatives); the market in which they trade (such as exchange-traded or over-the-counter); and their pay-off profile.

Derivatives may broadly be categorized as "lock" or "option" products. Lock products (such as swaps, futures, or forwards) obligate the contractual parties to the terms over the life of the contract. Optionproducts (such as interest rate swaps) provide the buyer the right, but not the obligation to enter the contract under the terms specified.

Derivatives can be used either for risk management (i.e. to "hedge" by providing offsetting compensation in case of an undesired event, a kind of "insurance") or for speculation (i.e. making a financial "bet"). This distinction is important because the former is a prudent aspect of operations and financial management for many firms across many industries; the latter offers managers and investors a risky opportunity to increase profit, which may not be properly disclosed to stakeholders.

Along with many other financial products and services, derivatives reform is an element of the Dodd–Frank Wall Street Reform and Consumer Protection Act of 2010. The Act delegated many rule-making details of regulatory oversight to the Commodity Futures Trading Commission (CFTC) and those details are not finalized nor fully implemented as of late 2012.

To give an idea of the size of the derivative market, *The Economist* has reported that as of June 2011, the over-the-counter (OTC) derivatives market amounted to approximately $700 trillion, and the size of the market traded on exchanges totaled an additional $83 trillion. However, these are "notional" values, and some economists say that this value greatly exaggerates the market value and the true credit risk faced by the parties involved. For example, in 2010, while the aggregate of OTC derivatives exceeded $600 trillion, the value of the market was estimated much lower, at $21 trillion. The credit risk equivalent of the derivative contracts was estimated at $3.3 trillion.

Still, even these scaled down figures represent huge amounts of money. For perspective, the budget for total expenditure of the United States government during 2012 was $3.5 trillion, and the total current value of the U.S. stock market is an estimated $23 trillion. The world annual Gross Domestic Product is about $65 trillion.

And for one type of derivative at least, Credit Default Swaps (CDS), for which the inherent risk is considered high,the higher, nominal value, remains relevant. It was this type of derivative that investment magnate Warren Buffett referred to in his famous 2002 speech in which he warned against "financial weapons of mass destruction". CDS notional value in early 2012 amounted to $25.5 trillion, down from $55 trillion in 2008.

Derivatives are used for the following:

- Hedge or mitigate risk in the underlying, by entering into a derivative contract whose value moves in the opposite direction to their underlying position and cancels part or all of it out
- Create option ability where the value of the derivative is linked to a specific condition or event (e.g., the underlying reaching a specific price level)
- Obtain exposure to the underlying where it is not possible to trade in the underlying (e.g., weather derivatives)
- Provide leverage (or gearing), such that a small movement in the underlying value can cause a large difference in the value of the derivative
- Speculate and make a profit if the value of the underlying asset moves the way they expect (e.g. moves in a given direction, stays in or out of a specified range, reaches a certain level)
- Switch asset allocations between different asset classes without disturbing the underlying assets, as part of transition management
- Avoid paying taxes. For example, an equity swap allows an investor to receive steady payments, e.g. based on LIBOR rate, while avoiding paying capital gains tax and keeping the stock.

Lock products are theoretically valued at zero at the time of execution and thus do not typically require an up-front exchange between the parties. Based upon movements in the underlying asset over time, however, the value of the contract will fluctuate, and the derivative may be either an asset (i.e., "in the money") or a liability (i.e., "out of the money") at different points throughout its life. Importantly, either party is therefore exposed to the credit quality of its counterparty and is interested in protecting itself in an event of default.

Option products have immediate value at the outset because they provide specified protection (intrinsic value) over a given time period (time value). One common form of option product familiar to many consumers is insurance for homes and automobiles. The insured would pay more for a policy with greater liability protections (intrinsic value) and one that extends for a year rather than six months (time value). Because of the immediate option value, the option purchaser typically pays an up front premium. Just like for lock products, movements in the underlying asset will cause the option's intrinsic value to change over time while its time value deteriorates steadily until the contract expires. An important difference between a lock product is that, after the initial exchange, the option purchaser has no further liability to its counterparty; upon maturity, the purchaser will execute the option if it has positive value (i.e., if it is "in the money") or expire at no cost (other than to the initial premium) (i.e., if the option is "out of the money").

Derivatives allow risk related to the price of the underlying asset to be transferred from one party to another. For example, a wheat farmer and a miller could sign a futures contract to exchange a specified amount of cash for a specified amount of wheat in the future. Both parties have reduced a future risk: for the wheat farmer, the uncertainty of the price, and for the miller, the availability of wheat. However, there is still the risk that no wheat will be available because of events unspecified by the contract, such as the weather, or that one party will renege on the contract. Although a third party, called a clearing house, insures a futures contract, not all derivatives are insured against counter-party risk.

From another perspective, the farmer and the miller both reduce a risk and acquire a risk when they sign the futures contract: the farmer reduces the risk that the price of wheat will fall below the price specified in the contract and acquires the risk that the price of wheat will rise above the price specified in the contract (thereby losing additional income that he could have earned). The miller, on the other hand, acquires the risk that the price of wheat will fall below the price specified in the contract (thereby paying more in the future than he otherwise would have) and reduces the risk that the price of wheat will rise above the price specified in the contract. In this sense, one party is the insurer (risk taker) for one type of risk, and the counter-party is the insurer (risk taker) for another type of risk.

Hedging also occurs when an individual or institution buys an asset (such as a commodity, a bond that has coupon payments, a stock that pays dividends, and so on) and sells it using a futures contract. The individual or institution has access to the asset for a specified amount of time, and can then sell it in the future at a specified price according to the futures contract. Of course, this allows the individual or institution the benefit of holding the asset, while reducing the risk that the future

selling price will deviate unexpectedly from the market's current assessment of the future value of the asset.

Derivatives trading of this kind may serve the financial interests of certain particular businesses. For example, a corporation borrows a large sum of money at a specific interest rate. The interest rate on the loan reprices every six months. The corporation is concerned that the rate of interest may be much higher in six months. The corporation could buy a forward rate agreement (FRA), which is a contract to pay a fixed rate of interest six months after purchases on a notional amount of money. If the interest rate after six months is above the contract rate, the seller will pay the difference to the corporation, or FRA buyer. If the rate is lower, the corporation will pay the difference to the seller. The purchase of the FRA serves to reduce the uncertainty concerning the rate increase and stabilize earnings.

Speculation and arbitrage

Derivatives can be used to acquire risk, rather than to hedge against risk. Thus, some individuals and institutions will enter into a derivative contract to speculate on the value of the underlying asset, betting that the party seeking insurance will be wrong about the future value of the underlying asset. Speculators look to buy an asset in the future at a low price according to a derivative contract when the future market price is high, or to sell an asset in the future at a high price according to a derivative contract when the future market price is less.

Individuals and institutions may also look for arbitrage opportunities, as when the current buying price of an asset falls below the price specified in a futures contract to sell the asset.

Speculative trading in derivatives gained a great deal of notoriety in 1995 when Nick Leeson, a trader at Barings Bank, made poor and unauthorized investments in futures contracts. Through a combination of poor judgment, lack of oversight by the bank's management and regulators, and unfortunate events like the Kobe earthquake, Leeson incurred a $1.3 billion loss that bankrupted the centuries-old institution.

Proportion used for hedging and speculation

The true proportion of derivatives contracts used for hedging purposes is unknown, but it appears to be relatively small. Also, derivatives contracts account for only 3–6% of the median firms' total currency and interest rate exposure. Nonetheless, we know that many firms' derivatives activities have at least some speculative component for a variety of reasons.

Types

OTC and exchange-traded

In broad terms, there are two groups of derivative contracts, which are distinguished by the way they are traded in the market:

- **Over-the-counter (OTC) derivatives** are contracts that are traded (and privately negotiated) directly between two parties, without going through an exchange or other intermediary. Products such as swaps, forward rate agreements, exotic options – and other exotic derivatives – are almost always traded in this way. The OTC derivative market is the largest market for derivatives, and is largely unregulated with respect to disclosure of information between the parties, since the OTC market is made up of banks and other highly sophisticated parties, such as hedge funds. Reporting of OTC amounts is difficult because trades can occur in private, without activity being visible on any exchange.

According to the Bank for International Settlements, who first surveyed OTC derivatives in 1995, reported that the "gross market value, which represent the cost of replacing all open contracts at the prevailing market prices, ... increased by 74% since 2004, to $11 trillion at the end of June 2007 (BIS 2007:24)." Positions in the OTC derivatives market increased to $516 trillion at the end of June 2007, 135% higher than the level recorded in 2004. the total outstanding notional amount is US$708 trillion (as of June 2011). Of this total notional amount, 67% are interest rate contracts, 8% are credit default swaps (CDS), 9% are foreign exchange contracts, 2% are commodity contracts, 1% are equity contracts, and 12% are other. Because OTC derivatives are not traded on an exchange, there is no central counter-party. Therefore, they are subject to counterparty risk, like an ordinary contract, since each counter-party relies on the other to perform.

- **Exchange-traded derivatives** (ETD) are those derivatives instruments that are traded via specialized derivatives exchanges or other exchanges. A derivatives exchange is a market where individuals trade standardized contracts that have been defined by the exchange. A derivatives exchange acts as an intermediary to all related transactions, and takes initial margin from both sides of the trade to act as a guarantee. The world's largest derivatives exchanges (by number of transactions) are the Korea Exchange (which lists KOSPI Index Futures & Options), Eurex (which lists a wide range of European products such as interest rate & index products), and CME Group (made up of the 2007 merger of the Chicago Mercantile Exchange and the Chicago Board of Trade and the

2008 acquisition of the New York Mercantile Exchange). According to BIS, the combined turnover in the world's derivatives exchanges totaled USD 344 trillion during Q4 2005. By December 2007 the Bank for International Settlements reported that "derivatives traded on exchanges surged 27% to a record $681 trillion."

Common derivative contract

Some of the common variants of derivative contracts are as follows:

1. Forwards: A tailored contract between two parties, where payment takes place at a specific time in the future at today's pre-determined price.
2. Futures: are contracts to buy or sell an asset on a future date at a price specified today. A futures contract differs from a forward contract in that the futures contract is a standardized contract written by a clearing house that operates an exchange where the contract can be bought and sold; the forward contract is a non-standardized contract written by the parties themselves.
3. Options are contracts that give the owner the right, but not the obligation, to buy (in the case of a call option) or sell (in the case of a put option) an asset. The price at which the sale takes place is known as the strike price, and is specified at the time the parties enter into the option. The option contract also specifies a maturity date. In the case of a European option, the owner has the right to require the sale to take place on (but not before) the maturity date; in the case of an American option, the owner can require the sale to take place at any time up to the maturity date. If the owner of the contract exercises this right, the counter-party has the obligation to carry out the transaction. Options are of two types: call option and put option. The buyer of a call option has a right to buy a certain quantity of the underlying asset, at a specified price on or before a given date in the future, but he has no obligation to carry out this right. Similarly, the buyer of a put option has the right to sell a certain quantity of an underlying asset, at a specified price on or before a given date in the future, but he has no obligation to carry out this right.
4. Binary options are contracts that provide the owner with an all-or-nothing profit profile.
5. Warrants: Apart from the commonly used short-dated options which have a maximum maturity period of one year, there exist certain long-dated options as well, known as warrants. These are generally traded over the counter.
6. Swaps are contracts to exchange cash (flows) on or before a specified future date based on the underlying value of currencies exchange rates,

bonds/interest rates, commodities exchange, stocks or other assets. Another term which is commonly associated with *swap* is *swaption*, a term for what is basically an option on the forward swap. Similar to call and put options, swaptions are of two kinds: *receiver* and *payer*. In the case of a receiver swaption there is an option wherein one can receive fixed and pay floating; in the case of a payer swaption one has the option to pay fixed and receive floating.

Swaps can basically be categorized into two types:

- Interest rate swap: These basically necessitate swapping only interest associated cash flows in the same currency, between two parties.
- Currency swap: In this kind of swapping, the cash flow between the two parties includes both principal and interest. Also, the money which is being swapped is in different currency for both parties.

Collateralized debt obligation

A **collateralized debt obligation** (**CDO**) is a type of structured asset-backed security (ABS). An "asset-backed security" is used as an umbrella term for a type of security backed by a pool of assets—including collateralized debt obligations and mortgage-backed securities (Example: "The capital market in which asset-backed securities are issued and traded is composed of three main categories: ABS, MBS and CDOs". (source: *Vink, Dennis. "ABS, MBS and CDO compared: An empirical analysis" (PDF). August 2007. Munich Personal RePEc Archive. Retrieved July 13, 2013.*)
—and sometimes for a particular type of that security—one backed by consumer loans (example: "As a rule of thumb, securitization issues backed by mortgages are called MBS, and securitization issues backed by debt obligations are called CDO, [and] Securitization issues backed by consumer-backed products—car loans, consumer loans and credit cards, among others—are called ABS. source *Vink, Dennis. "ABS, MBS and CDO compared: An empirical analysis" (PDF). August 2007. Munich Personal RePEc Archive. Retrieved July 13, 2013. SIFMA. Retrieved July 13, 2013. Asset-backed securities, called ABS, are bonds or notes backed by financial assets. Typically these assets consist of receivables other than mortgage loans, such as credit card receivables, auto loans, manufactured-housing contracts and home-equity loans.*)</ref> Originally developed for the corporate debt markets, over time CDOs evolved to encompass the mortgage and mortgage-backed security (MBS) markets. Like other private-label securities backed by assets, a CDO can be thought of

as a promise to pay investors in a prescribed sequence, based on the cash flow the CDO collects from the pool of bonds or other assets it owns. The CDO is "sliced" into "tranches", which "catch" the cash flow of interest and principal payments in sequence based on seniority. If some loans default and the cash collected by the CDO is insufficient to pay all of its investors, those in the lowest, most "junior" tranches suffer losses first. The last to lose payment from default are the safest, most senior tranches. Consequently, coupon payments (and interest rates) vary by tranche with the safest/most senior tranches paying the lowest and the lowest tranches paying the highest rates to compensate for higher default risk. As an example, a CDO might issue the following tranches in order of safeness: Senior AAA (sometimes known as "super senior"); Junior AAA; AA; A; BBB; Residual.

Separate special-purpose entities—rather than the parent investment bank—issue the CDOs and pay interest to investors. As CDOs developed, some sponsors repackaged tranches into yet another iteration called "CDO-Squared" or the "CDOs of CDOs". In the early 2000s, CDOs were generally diversified, but by 2006–2007—when the CDO market grew to hundreds of billions of dollars—this changed. CDO collateral became dominated not by loans, but by lower level (BBB or A) tranches recycled from other asset-backed securities, whose assets were usually non-prime mortgages. These CDOs have been called "the engine that powered the mortgage supply chain" for nonprime mortgages, and are credited with giving lenders greater incentive to make non-prime loans leading up to the 2007-9 subprime mortgage crisis.

Credit default swap

A **credit default swap** (**CDS**) is a financial swap agreement that the seller of the CDS will compensate the buyer (the creditor of the reference loan) in the event of a loan default (by the debtor) or other credit event. The buyer of the CDS makes a series of payments (the CDS "fee" or "spread") to the seller and, in exchange, receives a payoff if the loan defaults. It was invented by Blythe Masters from JP Morganin 1994. In the event of default the buyer of the CDS receives compensation (usually the face value of the loan), and the seller of the CDS takes possession of the defaulted loan. However, anyone with sufficient collateral to trade with a bank or hedge fund can purchase a CDS, even buyers who do not hold the loan instrument and who have no direct insurable interest in the loan (these are called "naked" CDSs). If there are more CDS contracts outstanding than bonds in existence, a protocol exists to hold a credit event auction; the payment received is usually substantially less than the face value of the loan. Credit default swaps have existed since the early 1990s, and increased in use after 2003. By the end of 2007, the outstanding CDS amount was $62.2 trillion, falling to $26.3 trillion by mid-year 2010 but reportedly $25.5 trillion in early 2012. CDSs are not traded on an exchange and there is no required reporting of transactions to a government agency. During the 2007-2010 financial crisisthe lack of

transparency in this large market became a concern to regulators as it could pose a systemic risk.

In March 2010, the [DTCC] Trade Information Warehouse announced it would give regulators greater access to its credit default swaps database. CDS data can be used by financial professionals, regulators, and the media to monitor how the market views credit risk of any entity on which a CDS is available, which can be compared to that provided by credit rating agencies. U.S. courts may soon be following suit. Most CDSs are documented using standard forms drafted by the International Swaps and Derivatives Association (ISDA), although there are many variants. In addition to the basic, single-name swaps, there are basket default swaps (BDSs), index CDSs, funded CDSs (also called credit-linked notes), as well as loan-only credit default swaps (LCDS). In addition to corporations and governments, the reference entity can include a special-purpose vehicle issuing asset-backed securities. Some claim that derivatives such as CDS are potentially dangerous in that they combine priority in bankruptcy with a lack of transparency. A CDS can be unsecured (without collateral) and be at higher risk for a default.

Forwards

In finance, a **forward contract** or simply a **forward** is a non-standardized contract between two parties to buy or to sell an asset at a specified future time at a price agreed upon today, making it a type of derivative instrument. This is in contrast to a spot contract, which is an agreement to buy or sell an asset on its spot date, which may vary depending on the instrument, for example most of the FX contracts have Spot Date two business days from today. The party agreeing to buy the underlying asset in the future assumes a long position, and the party agreeing to sell the asset in the future assumes a short position. The price agreed upon is called the delivery price, which is equal to the forward price at the time the contract is entered into. The price of the underlying instrument, in whatever form, is paid before control of the instrument changes. This is one of the many forms of buy/sell orders where the time and date of trade is not the same as the value date where the securities themselves are exchanged.

The forward price of such a contract is commonly contrasted with the spot price, which is the price at which the asset changes hands on the spot date. The difference between the spot and the forward price is the forward premium or forward discount, generally considered in the form of a profit, or loss, by the purchasing party. Forwards, like other derivative securities, can be used to hedge risk (typically currency or exchange rate risk), as a means of speculation, or to allow a party to take advantage of a quality of the underlying instrument which is time-sensitive.

A closely related contract is a futures contract; they differ in certain respects. Forward contracts are very similar to futures contracts, except they are not exchange-traded, or defined on standardized assets. Forwards also typically have no interim partial settlements or "true-ups" in margin requirements like futures—such that the parties do not exchange additional property securing the party at gain and the entire unrealized gain or loss builds up while the contract is open. However, being traded over the counter (OTC), forward contracts specification can be customized and may include mark-to-market and daily margin calls. Hence, a forward contract arrangement might call for the loss party to pledge collateral or additional collateral to better secure the party at gain. In other words, the terms of the forward contract will determine the collateral calls based upon certain "trigger" events relevant to a particular counterparty such as among other things, credit ratings, value of assets under management or redemptions over a specific time frame .

Futures

In finance, a 'futures contract' (more colloquially, **futures**) is a standardized contract between two parties to buy or sell a specified asset of standardized quantity and quality for a price agreed upon today (the *futures price*) with delivery and payment occurring at a specified future date, the *delivery date*, making it a derivative product (i.e. a financial product that is derived from an underlying asset). The contracts are negotiated at a futures exchange, which acts as an intermediary between buyer and seller. The party agreeing to buy the underlying asset in the future, the "buyer" of the contract, is said to be "long", and the party agreeing to sell the asset in the future, the "seller" of the contract, is said to be "short".

While the futures contract specifies a trade taking place in the future, the purpose of the futures exchange is to act as intermediary and mitigate the risk of default by either party in the intervening period. For this reason, the futures exchange requires both parties to put up an initial amount of cash (performance bond), the margin. Margins, sometimes set as a percentage of the value of the futures contract, need to be proportionally maintained at all times during the life of the contract to underpin this mitigation because the price of the contract will vary in keeping with supply and demand and will change daily and thus one party or the other will theoretically be making or losing money. To mitigate risk and the possibility of default by either party, the product is marked to market on a daily basis whereby the difference between the prior agreed-upon price and the actual daily futures price is settled on a daily basis. This is sometimes known as the variation margin where the futures exchange will draw money out of the losing party's margin account and put it into the other party's thus ensuring that the correct daily loss or profit is reflected in the respective account. If the margin account goes below a certain value set by the Exchange, then a margin call is made and the account owner must replenish the margin account. This process is

known as "marking to market". Thus on the delivery date, the amount exchanged is not the specified price on the contract but the spot value (i.e., the original value agreed upon, since any gain or loss has already been previously settled by marking to market). Upon marketing the strike price is often reached and creates lots of income for the "caller".

A closely related contract is a forward contract. A forward is like a futures in that it specifies the exchange of goods for a specified price at a specified future date. However, a forward is not traded on an exchange and thus does not have the interim partial payments due to marking to market. Nor is the contract standardized, as on the exchange. Unlike an option, both parties of a futures contract must fulfill the contract on the delivery date. The seller delivers the underlying asset to the buyer, or, if it is a cash-settled futures contract, then cash is transferred from the futures trader who sustained a loss to the one who made a profit. To exit the commitment prior to the settlement date, the holder of a futures position can close out its contract obligations by taking the opposite position on another futures contract on the same asset and settlement date. The difference in futures prices is then a profit or loss..

Mortgage-backed securities

A **mortgage-backed security** (**MBS**) is a asset-backed security that is secured by a mortgage, or more commonly a collection ("pool") of sometimes hundreds of mortgages. The mortgages are sold to a group of individuals (a government agency or investment bank) that "securitizes", or packages, the loans together into a security that can be sold to investors. The mortgages of an MBS may be residential or commercial, depending on whether it is an Agency MBS or a Non-Agency MBS; in the United States they may be issued by structures set up by government-sponsored enterprises like Fannie Mae or Freddie Mac, or they can be "private-label", issued by structures set up by investment banks. The structure of the MBS may be known as "pass-through", where the interest and principal payments from the borrower or homebuyer pass through it to the MBS holder, or it may be more complex, made up of a pool of other MBSs. Other types of MBS include collateralized mortgage obligations (CMOs, often structured as real estate mortgage investment conduits) and collateralized debt obligations (CDOs).

The shares of subprime MBSs issued by various structures, such as CMOs, are not identical but rather issued as tranches (French for "slices"), each with a different level of priority in the debt repayment stream, giving them different levels of risk and reward. Tranches—especially the lower-priority, higher-interest tranches—of an MBS are/were often further repackaged and resold as collaterized debt obligations. These subprime MBSs issued by investment banks were a major issue in the subprime mortgage crisis of 2006–2008 . The total face value of an MBS decreases over time,

because like mortgages, and unlike bonds, and most other fixed-income securities, the principal in an MBS is not paid back as a single payment to the bond holder at maturity but rather is paid along with the interest in each periodic payment (monthly, quarterly, etc.). This decrease in face value is measured by the MBS's "factor", the percentage of the original "face" that remains to be repaid.

Options

In finance, an **option** is a contract which gives the *buyer* (the owner) the right, but not the obligation, to buy or sell an underlying asset or instrument at a specified strike price on or before a specified date. The *seller* has the corresponding obligation to fulfill the transaction—that is to sell or buy—if the buyer (owner) "exercises" the option. The buyer pays a premium to the seller for this right. An option that conveys to the owner the right to buy something at a certain price is a "call option"; an option that conveys the right of the owner to sell something at a certain price is a "put option". Both are commonly traded, but for clarity, the call option is more frequently discussed. Options valuation is a topic of ongoing research in academic and practical finance. In basic terms, the value of an option is commonly decomposed into two parts:

- The first part is the "intrinsic value", defined as the difference between the market value of the underlying and the strike price of the given option.
- The second part is the "time value", which depends on a set of other factors which, through a multivariable, non-linear interrelationship, reflect the discounted expected value of that difference at expiration.

Although options valuation has been studied since the 19th century, the contemporary approach is based on the Black–Scholes model, which was first published in 1973.

Options contracts have been known for many centuries. However, both trading activity and academic interest increased when, as from 1973, options were issued with standardized terms and traded through a guaranteed clearing house at the Chicago Board Options Exchange. Today, many options are created in a standardized form and traded through clearing houses on regulated options exchanges, while other over-the-counter options are written as bilateral, customized contracts between a single buyer and seller, one or both of which may be a dealer or market-maker. Options are part of a larger class of financial instruments known as derivative products or simply derivatives.

Swaps

A **swap** is a derivative in which two counterparties exchange cash flows of one party's financial instrument for those of the other party's financial instrument. The benefits in question depend on the type of financial instruments involved. For example, in the case of a swap involving two bonds, the benefits in question can be the periodic interest (coupon) payments associated with such bonds. Specifically, two counterparties agree to the exchange one stream of cash flows against another stream. These streams are called the swap's "legs". The swap agreement defines the dates when the cash flows are to be paid and the way they are accrued and calculated. Usually at the time when the contract is initiated, at least one of these series of cash flows is determined by an uncertain variable such as a floating interest rate, foreign exchange rate, equity price, or commodity price.

The cash flows are calculated over a notional principal amount. Contrary to a future, a forward or an option, the notional amount is usually not exchanged between counterparties. Consequently, swaps can be in cash or collateral. Swaps can be used to hedge certain risks such as interest rate risk, or to speculate on changes in the expected direction of underlying prices.

Swaps were first introduced to the public in 1981 when IBM and the World Bank entered into a swap agreement. Today, swaps are among the most heavily traded financial contracts in the world: the total amount of interest rates and currency swaps outstanding is more than $348 trillion in 2010, according to the Bank for International Settlements (BIS). The five generic types of swaps, in order of their quantitative importance, are: interest rate swaps, currency swaps, credit swaps, commodity swaps and equity swaps (there are many other types).

Economic function of the derivative market

Some of the salient economic functions of the derivative market include:

1. Prices in a structured derivative market not only replicate the discernment of the market participants about the future but also lead the prices of underlying to the professed future level. On the expiration of the derivative contract, the prices of derivatives congregate with the prices of the underlying. Therefore, derivatives are essential tools to determine both current and future prices.
2. The derivatives market reallocates risk from the people who prefer risk aversion to the people who have an appetite for risk.

3. The intrinsic nature of derivatives market associates them to the underlying spot market. Due to derivatives there is a considerable increase in trade volumes of the underlying spot market. The dominant factor behind such an escalation is increased participation by additional players who would not have otherwise participated due to absence of any procedure to transfer risk.
4. As supervision, reconnaissance of the activities of various participants becomes tremendously difficult in assorted markets; the establishment of an organized form of market becomes all the more imperative. Therefore, in the presence of an organized derivatives market, speculation can be controlled, resulting in a more meticulous environment.
5. Third parties can use publicly available derivative prices as educated predictions of uncertain future outcomes, for example, the likelihood that a corporation will default on its debts.

In a nutshell, there is a substantial increase in savings and investment in the long run due to augmented activities by derivative market participant.

Valuation

Market and arbitrage-free prices

Two common measures of value are.

- Market price, i.e. the price at which traders are willing to buy or sell the contract
- Arbitrage-free price, meaning that no risk-free profits can be made by trading in these contracts

Determining the market price

For exchange-traded derivatives, market price is usually transparent (often published in real time by the exchange, based on all the current bids and offers placed on that particular contract at any one time). Complications can arise with OTC or floor-traded contracts though, as trading is handled manually, making it difficult to automatically broadcast prices. In particular with OTC contracts, there is no central exchange to collate and disseminate prices.

Determining the arbitrage-free price

The arbitrage-free price for a derivatives contract can be complex, and there are many different variables to consider. Arbitrage-free pricing is a central topic of financial mathematics. For futures/forwards the arbitrage free price is relatively straightforward, involving the price of the underlying together with the cost of carry (income received less interest costs), although there can be complexities.

However, for options and more complex derivatives, pricing involves developing a complex pricing model: understanding the stochastic process of the price of the underlying asset is often crucial. A key equation for the theoretical valuation of options is the Black–Scholes formula, which is based on the assumption that the cash flows from a European stock option can be replicated by a continuous buying and selling strategy using only the stock. A simplified version of this valuation technique is the binomial options model.

OTC represents the biggest challenge in using models to price derivatives. Since these contracts are not publicly traded, no market price is available to validate the theoretical valuation. Most of the model's results are input-dependent (meaning the final price depends heavily on how we derive the pricing inputs). Therefore, it is common that OTC derivatives are priced by Independent Agents that both counterparties involved in the deal designate upfront (when signing the contract).

Criticisms

Derivatives are often subject to the following criticisms:

Hidden tail risk

According to Raghuram Rajan, a former chief economist of the International Monetary Fund (IMF), "... it may well be that the managers of these firms [investment funds] have figured out the correlations between the various instruments they hold and believe they are hedged. Yet as Chan and others (2005) point out, the lessons of summer 1998 following the default on Russian government debt is that correlations that are zero or negative in normal times can turn overnight to one — a phenomenon they term "phase lock-in." A hedged position can become unhedged at the worst times, inflicting substantial losses on those who mistakenly believe they are protected."

Risks

The use of derivatives can result in large losses because of the use of leverage, or borrowing. Derivatives allow investors to earn large returns from small movements in the underlying asset's price. However, investors could lose large amounts if the price of the underlying moves against them significantly. There have been several instances of massive losses in derivative markets, such as the following:

- American International Group (AIG) lost more than US$18 billion through a subsidiary over the preceding three quarters on credit default swaps (CDSs). The United States Federal Reserve Bank announced the creation of a secured credit facility of up to US$85 billion, to prevent the company's collapse by enabling AIG to meet its obligations to deliver additional collateral to its credit default swap trading partners.
- The loss of US$7.2 Billion by Société Générale in January 2008 through mis-use of futures contracts.
- The loss of US$6.4 billion in the failed fund Amaranth Advisors, which was long natural gas in September 2006 when the price plummeted.
- The loss of US$4.6 billion in the failed fund Long-Term Capital Management in 1998.
- The loss of US$1.3 billion equivalent in oil derivatives in 1993 and 1994 by Metallgesellschaft AG.
- The loss of US$1.2 billion equivalent in equity derivatives in 1995 by Barings Bank.
- UBS AG, Switzerland's biggest bank, suffered a $2 billion loss through unauthorized trading discovered in September 2011.

This comes to a staggering $39.5 billion, the majority in the last decade after the Commodity Futures Modernization Act of 2000 was passed.

Counter party risk

Some derivatives (especially swaps) expose investors to counterparty risk, or risk arising from the other party in a financial transaction. Different types of derivatives have different levels of counter party risk. For example, standardized stock options by law require the party at risk to have a certain amount deposited with the exchange, showing that they can pay for any losses; banks that help businesses swap variable for fixed rates on loans may do credit checks on both parties. However, in private agreements between two companies, for example, there may not be benchmarks for performing due diligence and risk analysis.

Large notional value

Derivatives typically have a **large notional value**. As such, there is the danger that their use could result in losses for which the investor would be unable to compensate. The possibility that this could lead to a chain reaction ensuing in an economic crisis was pointed out by famed investor Warren Buffett in Berkshire Hathaway's 2002 annual report. Buffett called them 'financial weapons of mass destruction.' A potential problem with derivatives is that they comprise an increasingly larger notional amount of assets which may lead to distortions in the underlying capital and equities markets themselves. Investors begin to look at the derivatives markets to make a decision to buy or sell securities and so what was originally meant to be a market to transfer risk now becomes a leading indicator.

Financial Reform and Government Regulation

Under US law and the laws of most other developed countries, derivatives have special legal exemptions that make them a particularly attractive legal form to extend credit. The strong creditor protections afforded to derivatives counterparties, in combination with their complexity and lack of transparency however, can cause capital markets to underprice credit risk. This can contribute to credit booms, and increase systemic risks. Indeed, the use of derivatives to conceal credit risk from third parties while protecting derivative counterparties contributed to the financial crisis of 2008 in the United States.

In the context of a 2010 examination of the ICE Trust, an industry self-regulatory body, Gary Gensler, the chairman of the Commodity Futures Trading Commission which regulates most derivatives, was quoted saying that the derivatives marketplace as it functions now "adds up to higher costs to all Americans." More oversight of the banks in this market is needed, he also said. Additionally, the report said, "[t]he Department of Justice is looking into derivatives, too. The department's antitrust unit is actively investigating 'the possibility of anticompetitive practices in the credit derivatives clearing, trading and information services industries,' according to a department spokeswoman."

For legislators and committees responsible for financial reform related to derivatives in the United States and elsewhere, distinguishing between hedging and speculative derivatives activities has been a nontrivial challenge. The distinction is critical because regulation should help to isolate and curtail speculation with derivatives, especially for "systemically significant" institutions whose default could be large enough to threaten the entire financial system. At the same time, the legislation should allow for responsible parties to hedge risk without unduly tying up working capital as collateral that firms may better employ elsewhere in their operations and investment.

In this regard, it is important to distinguish between financial (e.g. banks) and non-financial end-users of derivatives (e.g. real estate development companies) because these firms' derivatives usage is inherently different. More importantly, the reasonable collateral that secures these different counterparties can be very different. The distinction between these firms is not always straight forward (e.g. hedge funds or even some private equity firms do not neatly fit either category). Finally, even financial users must be differentiated, as 'large' banks may classified as "systemically significant" whose derivatives activities must be more tightly monitored and restricted than those of smaller, local and regional banks.

Over-the-counter dealing will be less common as the Dodd–Frank Wall Street Reform and Consumer Protection Act comes into effect. The law mandated the clearing of certain swaps at registered exchanges and imposed various restrictions on derivatives. To implement Dodd-Frank, the CFTC developed new rules in at least 30 areas. The Commission determines which swaps are subject to mandatory clearing and whether a derivatives exchange is eligible to clear a certain type of swap contract.

Nonetheless, the above and other challenges of the rule-making process have delayed full enactment of aspects of the legislation relating to derivatives. The challenges are further complicated by the necessity to orchestrate globalized financial reform among the nations that comprise the world's major financial markets, a primary responsibility of the Financial Stability Board whose progress is ongoing.

In the U.S., by February 2012 the combined effort of the SEC and CFTC had produced over 70 proposed and final derivatives rules. However, both of them had delayed adoption of a number of derivatives regulations because of the burden of other rulemaking, litigation and opposition to the rules, and many core definitions (such as the terms "swap," "security-based swap," "swap dealer," "security-based swap dealer," "major swap participant" and "major security-based swap participant") had still not been adopted. SEC Chairman Mary Schapiro opined: "At the end of the day, it probably does not make sense to harmonize everything [between the SEC and CFTC rules] because some of these products are quite different and certainly the market structures are quite different." On February 11, 2015, the Securities and Exchange Commission (SEC) released two final rules toward establishing a reporting and public disclosure framework for security-based swap transaction data. The two rules are not completely harmonized with the requirements with CFTC requirements.

In November 2012, the SEC and regulators from Australia, Brazil, the European Union, Hong Kong, Japan, Ontario, Quebec, Singapore, and Switzerland met to discuss reforming the OTC derivatives market, as had been agreed by leaders at the 2009 G-20 Pittsburgh summit in September 2009. In December 2012, they released a joint statement to the effect that they recognized that the market is a global

one and "firmly support the adoption and enforcement of robust and consistent standards in and across jurisdictions", with the goals of mitigating risk, improving transparency, protecting against market abuse, preventing regulatory gaps, reducing the potential for arbitrage opportunities, and fostering a level playing field for market participants. They also agreed on the need to reduce regulatory uncertainty and provide market participants with sufficient clarity on laws and regulations by avoiding, to the extent possible, the application of conflicting rules to the same entities and transactions, and minimizing the application of inconsistent and duplicative rules. At the same time, they noted that "complete harmonization – perfect alignment of rules across jurisdictions" would be difficult, because of jurisdictions' differences in law, policy, markets, implementation timing, and legislative and regulatory processes.

On December 20, 2013 the CFTC provided information on its swaps regulation "comparability" determinations. The release addressed the CFTC's cross-border compliance exceptions. Specifically it addressed which entity level and in some cases transaction-level requirements in six jurisdictions (Australia, Canada, the European Union, Hong Kong, Japan, and Switzerland) it found comparable to its own rules, thus permitting non-US swap dealers, major swap participants, and the foreign branches of US Swap Dealers and major swap participants in these jurisdictions to comply with local rules in lieu of Commission rules.

Reporting

Mandatory reporting regulations are being finalized in a number of countries, such as Dodd Frank Act in the US, the European Market Infrastructure Regulations (EMIR) in Europe, as well as regulations in Hong Kong, Japan, Singapore, Canada, and other countries. The OTC Derivatives Regulators Forum (ODRF), a group of over 40 worldwide regulators, provided trade repositories with a set of guidelines regarding data access to regulators, and the Financial Stability Board and CPSS IOSCO also made recommendations in with regard to reporting.

DTCC, through its "Global Trade Repository" (GTR) service, manages global trade repositories for interest rates, and commodities, foreign exchange, credit, and equity derivatives. It makes global trade reports to the CFTC in the U.S., and plans to do the same for ESMA in Europe and for regulators in Hong Kong, Japan, and Singapore. It covers cleared and uncleared OTC derivatives products, whether or not a trade is electronically processed or bespoke.

Glossary

- Bilateral netting: A legally enforceable arrangement between a bank and a counter-party that creates a single legal obligation covering all included individual contracts. This means that a bank's obligation, in the event of the default or insolvency of one of the parties, would be the net sum of all positive and negative fair values of contracts included in the bilateral netting arrangement.
- Counterparty: The legal and financial term for the other party in a financial transaction.
- Credit derivative: A contract that transfers credit risk from a protection buyer to a credit protection seller. Credit derivative products can take many forms, such as credit default swaps, credit linked notes and total return swaps.
- Derivative: A financial contract whose value is derived from the performance of assets, interest rates, currency exchange rates, or indexes. Derivative transactions include a wide assortment of financial contracts including structured debt obligations and deposits, swaps, futures, options, caps, floors, collars, forwards and various combinations thereof.
- Exchange-traded derivative contracts: Standardized derivative contracts (e.g., futures contracts and options) that are transacted on an organized futures exchange.
- Gross negative fair value: The sum of the fair values of contracts where the bank owes money to its counter-parties, without taking into account netting. This represents the maximum losses the bank's counter-parties would incur if the bank defaults and there is no netting of contracts, and no bank collateral was held by the counter-parties.
- Gross positive fair value: The sum total of the fair values of contracts where the bank is owed money by its counter-parties, without taking into account netting. This represents the maximum losses a bank could incur if all its counter-parties default and there is no netting of contracts, and the bank holds no counter-party collateral.
- High-risk mortgage securities: Securities where the price or expected average life is highly sensitive to interest rate changes, as determined by the U.S. Federal Financial Institutions Examination Council policy statement on high-risk mortgage securities.
- Notional amount: The nominal or face amount that is used to calculate payments made on swaps and other risk management products. This amount generally does not change hands and is thus referred to as notional.

- Over-the-counter (OTC) derivative contracts: Privately negotiated derivative contracts that are transacted off organized futures exchanges.
- Structured notes: Non-mortgage-backed debt securities, whose cash flow characteristics depend on one or more indices and / or have embedded forwards or options.
- Total risk-based capital: The sum of tier 1 plus tier 2 capital. Tier 1 capital consists of common shareholders equity, perpetual preferred shareholders equity with noncumulative dividends, retained earnings, and minority interests in the equity accounts of consolidated subsidiaries. Tier 2 capital consists of subordinated debt, intermediate-term preferred stock, cumulative and long-term preferred stock, and a portion of a bank's allowance for loan and lease losses.

Open outcry

Open outcry is the name of a method of communication between professionals on a stock exchange or futures exchange typically on a trading floor. It involves shouting and the use of hand signals to transfer information primarily about buy and sell orders. The part of the trading floor where this takes place is called a pit.

In an open outcry auction, bids and offers must be made out in the open market, giving all participants a chance to compete for the order with the best price. New bids or offers would be made if better than previous pricing for efficient price discovery. Exchanges also value positions marked to these public market prices on a daily basis. In contrast, over-the-counter markets are where bids and offers are negotiated privately between principals.

Since the development of the stock exchange in the 17th century in Amsterdam, open outcry was the main method used to communicate among traders. This started changing in the latter half of the 20th century, first through the use of telephone trading, and then starting in the 1980s with electronic trading systems.

As of 2007, a few exchanges still had floor trading using open outcry. The supporters of electronic trading claim that they are faster, cheaper, more efficient for users, and less prone to manipulation by market makers and broker/dealers. However, many traders still advocate for the open outcry system on the basis that the physical contact allows traders to speculate as to a buyer/seller's motives or intentions and adjust their positions accordingly. As of 2010, most stocks and futures contracts were no longer traded using open outcry due to the lower cost of the aforementioned technological advances.

Since the 1980s, the open outcry systems have been being replaced by electronic trading systems (such as CATS and Globex).

Floor trading is the meeting of traders or stockbrokers at a specific venue referred to as a trading floor or pit to buy and sell financial instruments using open outcry method to communicate with each other. These venues are typically stock exchanges or futures exchanges and transactions are executed by members of such an exchange using specific language or hand signals. During the 1980s and 1990s, phone and electronic trading replaced physical floor trading in most exchanges around the world.,

As of 2007, few exchanges still have floor trading. One example is the New York Stock Exchange (NYSE) which still executes a small percentage of its trades on the

floor. That means that the traders actually form a group around the post on the floor of the market for the specialist, someone that works for one of the NYSE member firms and handles the stock. As in an auction, there are shouts from those that want to sell and those that want to buy. The specialist facilitates in the match and centralizing the trades.

On 24 January 2007, the NYSE went from being strictly an auction market to a hybrid market that encompassed both the auction method and an electronic trading method that immediately makes the trade electronically. A small group of extremely high-priced stocks isn't on this trading system and is still auctioned on the trading floor.

Even though over 82 percent of the trades take place electronically, the action on the floor of the stock exchange still has its place. While electronic trading is faster and provides for anonymity, there is more opportunity to improve the price of a share if it goes to the floor. Investors maintain the right to select the method they want to use.

Conversion to electronic trading

- The London Stock Exchange moved to electronic trading in 1986.
- The Borsa Italiana, Italy's stock market, located in Milan, moved to electronic trading in 1994.
- The Bombay Stock Exchange, Mumbai, embraced electronic trading in 1995 by introducing the BSE Online Trading (BOLT) System on 14 March 1995.
- The Colombo Stock Exchange (CSE) adopted electronic trading(The Automated Trading System (ATS) in 1997 and upgraded from ATS 4.00 to ATS 7.10.
- The Toronto Stock Exchange (TSX) adopted electronic trading in 1997.
- International Petroleum Exchange (IPE) moved to electronic trading in 2005.
- Minneapolis Grain Exchange (MGEX) moved to electronic trading in 2008.
- Johannesburg Stock Exchange
- New York Stock Exchange, 2006-2007, under John Thain
- New York Mercantile Exchange (Nymex), 2006.

Since the 1980s, Nymex had a virtual monopoly on 'open market' oil futures trading, but the electronically based IntercontinentalExchange (ICE) began trading oil contracts that were extremely similar to Nymex's in the early 2000s and Nymex began to lose market share almost immediately. The pit-traders at Nymex had been resisting the electronic move for decades, but the executives believed the exchange had to move to the electronic format, or it would cease to exist as a viable business. The executives introduced CME's Globex system into Nymex in 2006.

Hand signals

Floor hand signals are used to communicate buy and sell information in an open outcry trading environment. The system is used at futures exchanges such as the Chicago Mercantile Exchange.

Traders usually flash the signals quickly across a room to make a sale or a purchase. Signals that occur with palms facing out and hands away from the body are an indication the gesturer wishes to sell. When traders face their palms in and hold their hands up, they are gesturing to buy.

Numbers one through five are gestured on one hand, and six through ten are gestured in the same way only held sideways at a 90 degree angle (index finger out sideways is six, two fingers is seven, and so on). Numbers gestured from the forehead are blocks of ten, and blocks of hundreds and thousands can also be displayed. The signals can otherwise be used to indicate months, specific trade or option combinations, or additional market information.

These rules may vary among exchanges or even among floors within the same exchange; however, the purpose of the gestures remains the same.

Closed-end fund

A **closed-end fund** (**CEF**) or **closed-ended fund** is a collective investment model based on issuing a fixed number of shares which are not redeemable from the fund. Unlike open-end funds, new shares in a closed-end fund are not created by managers to meet demand from investors. Instead, the shares can be purchased and sold only in the market, which is the original design of the mutual fund, which predates open-end mutual funds but offers the same actively-managed pooled investments.

In the United States, closed-end funds sold publicly must be registered under both the Securities Act of 1933 and the Investment Company Act of 1940.

Closed-end funds are usually listed on a recognized stock exchange and can be bought and sold on that exchange. The price per share is determined by the market and is usually different from the underlying value or net asset value (NAV) per share of the investments held by the fund. The price is said to be at a discount or premium to the NAV when it is below or above the NAV, respectively.

A premium might be caused by the market's confidence in the investment managers' ability or the underlying securities to produce above-market returns. A discount might reflect the charges to be deducted from the fund in future by the managers, uncertainty from high amounts of leverage, concerns related to liquidity or lack of investor confidence in the underlying securities.

In the United States, closed-end funds are referred to under the law as *closed-end companies* and form one of three SEC-recognized types of investment companies along with mutual funds and unit investment trusts. Examples of closed-ended funds in other countries are investment trusts in the United Kingdom and listed investment companies in Australia.

Availability

Closed end funds are typically traded on the major global stock exchanges. In the United States the New York Stock Exchange is dominant although the NASDAQ is in competition; in the United Kingdom the London Stock Exchange's *main market* is home to the mainstream funds although AIM supports many small funds especially the venture capital trusts; in Canada, the Toronto Stock Exchange lists many closed-end funds.

Like their better-known open-ended cousins, closed-end funds are usually sponsored by a fund management company which will control how the fund is invested. They

begin by soliciting money from investors in an initial offering, which may be public or limited. The investors are given shares corresponding to their initial investment. The fund managers pool the money and purchase securities or other assets. What exactly the fund manager can invest in depends on the fund's charter, prospectus and the applicable government regulations. Some funds invest in stocks, others in bonds, and some in very specific things (for instance, tax-exempt bonds issued by the state of Florida in the USA).

Distinguishing features

A closed-end fund differs from an open-end mutual fund in that:

- It is closed to new capital after it begins operating.
- Its shares (typically) trade on stock exchanges rather than being redeemed directly by the fund.
- Its shares can therefore be traded at any time during market opening hours. An open-end fund can usually be traded only at a time of day specified by the managers, and the dealing price will usually not be known in advance.
- It usually trades at a premium or discount to its net asset value. An open-end fund trades at its net asset value (to which sales charges may be added; and adjustments may be made for e.g. the frictional costs of purchasing or selling the underlying investments).
- In the United States, a closed-end company can own unlisted securities.

Another distinguishing feature of a closed-end fund is the common use of leverage (gearing). In doing so, the fund manager hopes to earn a higher return with this additional invested capital. This additional capital can be raised by issuing auction rate securities, preferred stock, long-term debt, or reverse-repurchase agreements.

A fund raises its initial equity through the sale of common stock. The amount of equity that belongs to a share of common stock is known as its net asset value (NAV). As the fund operates, NAV increases with investment gains and decreases with losses. These gains or losses are amplified when the fund employs leverage.

The amount of leverage a fund uses is expressed as a percent of total fund assets (e.g. if it has a 25% leverage ratio, that means that for each $100 of total assets under management, $75 is equity and $25 is debt).

Leverage affects both fund income, and capital gains and losses. The additional investments bought with the leverage increases gross income proportionally to the leverage used, but net income is reduced by the interest rate paid to lenders or

preferred shareholders. However, capital gains or losses flow directly to the NAV of the common stock. This increases the volatility of the NAV of a leveraged fund, compared with its un-leveraged peer. For example, if an un-leveraged fund had a 10% gain or loss, its 25% leveraged peer would have an about 13.3% gain or loss. If instead, the fund had a 40% leverage ratio, the gain or loss would be about 16.7%.

In some cases, fund managers charge management fees based on the total managed assets of the fund, which includes leverage. This further reduces the income benefit of leverage to the common shareholder, while retaining the additional volatility.

Leveraged funds can seem to have higher expense ratios—a common way that investors compare funds—than their non-leveraged peers. Some investment analysts advocate that expenses attributable to the use of leverage should be considered a reduction of investment income rather than an expense, and publish adjusted ratios.

Long-term debt arrangements and reverse repurchase agreements are two additional ways to raise additional capital for the fund. Funds may use a combination of leveraging tactics or each individually. However, it is more common for the fund to use only one leveraging technique.

Since stock in closed-end funds is traded like other stock, an investor trading them will pay a brokerage commission similar to that paid when trading other stocks (as opposed to commissions on open-ended mutual funds, where the commission will vary based on the share class chosen and the method of purchasing the fund). In other words, closed-end funds typically do not have sales-based share classes with different commission rates and annual fees. The main exception is loan-participation funds.

Initial offering

Like a company going public, a closed-end fund will have an initial public offering of its shares at which it will sell, say, 10 million shares for $10 each. That will raise $100 million for the fund manager to invest. At that point, the fund's 10 million shares will begin to trade on a secondary market, typically the NYSE or the AMEX for American closed-end funds. Any investor who subsequently wishes to buy or sell fund shares will do so on the secondary market. In normal circumstances, closed-end funds do not redeem their own shares. Nor, typically, do they sell more shares after the IPO (although they may issue preferred stock, in essence taking out a loan secured by the portfolio). In general, closed-end funds cannot issue securities for services or property other than cash or securities.

Exchange-traded

Closed-end fund shares are traded throughout market opening hours at whatever price the market will support. It may be possible to deal using advanced types of orders such as limit orders and stop orders. This is in contrast to some open-end funds which are only available for buying and selling at the close of business each day, at the calculated NAV, and for which orders must be placed in advance, before the NAV is known, and by simple buy or sell orders. Some funds require that orders be placed hours or days in advance, in order to simplify their administration, make it easier to match buyers with sellers, and eliminate the possibility of arbitrage (for example if the fund holds investments which are traded in other time zones).

Closed-end funds are traded on exchanges and in that respect they are like exchange-traded funds (ETFs), but there are important differences between these two kinds of security. The price of a closed-end fund is completely determined by the valuation of the market, and this price often diverges substantially from the NAV of the fund assets. In contrast, the market price of an ETF trades in a narrow range very close to its net asset value, because the structure of ETFs allows major market participants to redeem shares of an ETF for a "basket" of the fund's underlying assets. This feature could in theory lead to potential arbitrage profits if the market price of the ETF were to diverge substantially from its NAV. The market prices of closed-end funds are often 10% to 20% higher or lower than their NAV, while the market price of an ETF is typically within 1% of its NAV. Since the market downturn of late 2008 a number of fixed income ETFs have traded at premiums of roughly 2% to 3% above their NAV.

Discounts and premiums

As they are exchange-traded, the price of CEFs will be different from the NAV - an effect known as the closed-end fund puzzle. In particular, fund shares often trade at what look to be irrational prices because secondary market prices are often very much out of line with underlying portfolio values. A CEF can trade at a premium at some times, and a discount at other times.

Comparison with open-ended funds

With open-end funds, the value is precisely equal to the NAV. So investing $1000 into the fund means buying shares that lay claim to $1000 worth of underlying assets (apart from sales charges and the fund's investment costs). But buying a closed-end fund trading at a premium might mean buying $900 worth of assets for $1000.

Some advantages of closed-end funds over their open-ended cousins are financial. CEFs do not have to deal with the expense of creating and redeeming shares, they tend to keep less cash in their portfolio, and they need not worry about market fluctuations to maintain their "performance record". So if a stock drops irrationally, the closed-end fund may snap up a bargain, while open-ended funds might sell too early.

Also, if there is a market panic, investors may sell a particular stock or segment of stocks en masse. Faced with a wave of sell orders and needing to raise money for redemptions, the manager of an open-ended fund may be forced to sell stocks he would rather keep, and keep stocks he would rather sell, because of liquidity concerns (selling too much of any one stock causes the price to drop disproportionately). Thus it may become overweight in the shares of lower perceived quality or underperforming companies for which there is little demand. But an investor pulling out of a closed-end fund must sell it on the market to another buyer, so the manager need not sell any of the underlying stock. The CEF's price will likely drop more than the market does (severely punishing those who sell during the panic), but it is more likely to make a recovery when/if the stock(s) rebound.

Because a closed-end fund is listed on the market, it must obey certain rules, such as filing reports with the listing authority and holding annual stockholder meetings.

Examples

Among the biggest, long-running CEFs are:

- Adams Express Company (NYSE:ADX)
- Witan Investment Trust plc (LSE:WTAN)
- Scottish Mortgage Investment Trust (LSE:SMT)
- Tri-Continental Corporation (NYSE:TY)
- Gabelli Equity Trust (NYSE:GAB)
- General American Investors Company, Inc. (NYSE:GAM)

Secondary market

The **secondary market**, also called the **aftermarket** and **follow on public offering** is the financial market in which previously issued financial instrumentssuch as stock, bonds, options, and futures are bought and sold. Another frequent usage of "secondary market" is to refer to loans which are sold by a mortgage bank to investors such as Fannie Mae and Freddie Mac.

The term "secondary market" is also used to refer to the market for any used goods or assets, or an alternative use for an existing product or asset where the customer base is the second market (for example, corn has been traditionally used primarily for food production and feedstock, but a "second" or "third" market has developed for use in ethanol production).

With primary issuances of securities or financial instruments, or the primary market, investors purchase these securities directly from issuers such as corporations issuing shares in an IPO or private placement, or directly from the federal government in the case of treasuries. After the initial issuance, investors can purchase from other investors in the secondary market.

The secondary market for a variety of assets can vary from loans to stocks, from fragmented to centralized, and from illiquid to very liquid. The major stock exchanges are the most visible example of liquid secondary markets - in this case, for stocks of publicly traded companies. Exchanges such as the New York Stock Exchange, London Stock Exchange and Nasdaq provide a centralized, liquid secondary market for the investors who own stocks that trade on those exchanges. Most bonds and structured products trade “over the counter,” or by phoning the bond desk of one’s broker-dealer. Loans sometimes trade online using a Loan Exchange.

In the secondary market, securities are sold by and transferred from one investor or speculator to another. It is therefore important that the secondary market be highly liquid (originally, the only way to create this liquidity was for investors and speculators to meet at a fixed place regularly; this is how stock exchanges originated, As a general rule, the greater the number of investors that participate in a given marketplace, and the greater the centralization of that marketplace, the more liquid the market.

Fundamentally, secondary markets mesh the investor's preference for liquidity (i.e., the investor's desire not to tie up his or her money for a long period of time, in case the investor needs it to deal with unforeseen circumstances) with the capital user's preference to be able to use the capital for an extended period of time.

Accurate share price allocates scarce capital more efficiently when new projects are financed through a new primary market offering, but accuracy may also matter in the secondary market because: 1) price accuracy can reduce the agency costs of management, and make hostile takeover a less risky proposition and thus move capital into the hands of better managers, and 2) accurate share price aids the efficient allocation of debt finance whether debt offerings or institutional borrowing.

The term may refer to markets in things of value other than securities. For example, the ability to buy and sell intellectual property such as patents, or rights to musical compositions, is considered a secondary market because it allows the owner to freely resell property entitlements issued by the government. Similarly, secondary markets can be said to exist in some real estate contexts as well (e.g. ownership shares of time-share vacation homes are bought and sold outside of the official exchange set up by the timeshare issuers). These have very similar functions as secondary stock and bond markets in allowing for speculation, providing liquidity, and financing through securitization. It facilitates liquidity and marketability of the long term instrument. It also provides instant valuation of securities caused by changes in the environment. Private equity secondary market refers to the buying and selling of pre-existing investor commitments to private equity funds. Sellers of private equity investments sell not only the investments in the fund but also their remaining unfunded commitments to the funds. Due to the increased compliance and reporting obligations enacted in the Sarbanes-Oxley Act of 2002, private secondary markets began to emerge, such as SecondMarket and SecondaryLink. These markets are generally only available to institutional or accredited investors and allow trading of unregistered and private company securities.

Dividend

A **dividend** is a payment made by a corporation to its shareholders, usually as a distribution of profits. When a corporation earns a profit or surplus, the corporation is able to re-invest the profit in the business (called retained earnings) and pay a proportion of the profit as a dividend to shareholders. Distribution to shareholders may be in cash (usually a deposit into a bank account) or, if the corporation has a dividend reinvestment plan, the amount can be paid by the issue of further shares or share repurchase.

A dividend is allocated as a fixed amount per share, with shareholders receiving a dividend in proportion to their shareholding. For the joint-stock company, paying dividends is not an expense; rather, it is the division of after-tax profits among shareholders. Retained earnings (profits that have not been distributed as dividends) are shown in the shareholders' equity section on the company's balance sheet – the same as its issued share capital. Public companies usually pay dividends on a fixed schedule, but may declare a dividend at any time, sometimes called a special dividend to distinguish it from the fixed schedule dividends. Cooperatives, on the other hand, allocate dividends according to members' activity, so their dividends are often considered to be a pre-tax expense.

Cash dividends are the most common form of payment and are paid out in currency, usually via electronic funds transfer or a printed paper check. Such dividends are a form of investment income and are usually taxable to the recipient in the year they are paid. This is the most common method of sharing corporate profits with the shareholders of the company. For each share owned, a declared amount of money is distributed. Thus, if a person owns 100 shares and the cash dividend is 50 cents per share, the holder of the stock will be paid $50. Dividends paid are not classified as an expense, but rather a deduction of retained earnings. Dividends paid does not show up on an income statement but does appear on the balance sheet.

Stock or scrip dividends are those paid out in the form of additional stock shares of the issuing corporation, or another corporation (such as its subsidiary corporation). They are usually issued in proportion to shares owned (for example, for every 100 shares of stock owned, a 5% stock dividend will yield 5 extra shares).

Nothing tangible will be gained if the stock is split because the total number of shares increases, lowering the price of each share, without changing the market capitalization, or total value, of the shares held.

Stock dividend distributions are issues of new shares made to limited partners by a partnership in the form of additional shares. Nothing is split, these shares increase the market capitalization and total value of the company at the same time reducing the original cost basis per share.

Stock dividends are not includable in the gross income of the shareholder for US income tax purposes. Because the shares are issued for proceeds equal to the pre-existing market price of the shares; there is no negative dilution in the amount recoverable.

Property dividends or dividends ***in specie*** (Latin for "in kind") are those paid out in the form of assets from the issuing corporation or another corporation, such as a subsidiary corporation. They are relatively rare and most frequently are securities of other companies owned by the issuer, however they can take other forms, such as products and services.

Interim dividends are dividend payments made before a company's Annual General Meeting (AGM) and final financial statements. This declared dividend usually accompanies the company's interim financial statements.

Other dividends can be used in structured finance. Financial assets with a known market value can be distributed as dividends; warrants are sometimes distributed in this way. For large companies with subsidiaries, dividends can take the form of shares in a subsidiary company. A common technique for "spinning off" a company from its parent is to distribute shares in the new company to the old company's shareholders. The new shares can then be traded independently.

Two metrics are commonly used to examine a firm's dividend policy.

Payout ratio is calculated by dividing the company's dividend by the earnings per share. A payout ratio greater than 1 means the company is paying out more in dividends for the year than it earned.

Dividend cover is calculated by dividing the company's cash flow from operations by the dividend. This ratio is apparently popular with analysts of income trusts in Canada. Dividends are payments made by a corporation to its shareholder members. It is the portion of corporate profits paid out to stockholders.

Dividend dates

A dividend that is declared must be approved by a company's board of directors before it is paid. For public companies, four dates are relevant regarding dividends:

Declaration date — the day the board of directors announces its intention to pay a dividend. On that day, a liability is created and the company records that liability on its books; it now owes the money to the stockholders.

In-dividend date — the last day, which is one trading day before the *ex-dividend date*, where the stock is said to be *cum dividend* ('with [**in**cluding] dividend'). In other words, existing holders of the stock and anyone who buys it on this day will receive the dividend, whereas any holders selling the stock lose their right to the dividend. After this date the stock becomes *ex dividend*.

Ex-dividend date — the day on which shares bought and sold no longer come attached with the right to be paid the most recently declared dividend. In the United States, it is typically 2 trading days before the *record date*. This is an important date for any company that has many stockholders, including those that trade on exchanges, to enable reconciliation of who is entitled to be paid the dividend. Existing holders of the stock will receive the dividend even if they sell the stock on or after that date, whereas anyone who bought the stock will not receive the dividend. It is relatively common for a stock's price to decrease on the ex-dividend date by an amount roughly equal to the dividend paid. This reflects the decrease in the company's assets resulting from the declaration of the dividend.

Book closure date —when a company announces a dividend, it will also announce a date on which the company will ideally temporarily close its books for fresh transfers of stock, which is also usually the record date.

Record date — shareholders registered in the company's record as of the record date will be paid the dividend. Shareholders who are not registered as of this date will not receive the dividend. Registration in most countries is essentially automatic for shares purchased before the ex-dividend date.

Payment date — the day on which the dividend cheque will actually be mailed to shareholders or credited to their bank account.

Dividend-reinvestment

Some companies have dividend reinvestment plans, or DRIPs, not to be confused with scrips. DRIPs allow shareholders to use dividends to systematically buy small amounts of stock, usually with no commission and sometimes at a slight discount. In some cases, the shareholder might not need to pay taxes on these re-invested dividends, but in most cases they do.

Dividend taxation

Most countries impose a corporate tax on the profits made by a company. A dividend paid by a company is not an expense of the company, but is income of the shareholder. The tax treatment of this dividend income varies considerably between countries:

United States and Canada

The United States and Canada impose a lower tax rate on dividend income than ordinary income, on the assertion that company profits had already been taxed as corporate tax.

Australia and New Zealand

Australia and New Zealand have a dividend imputation system, wherein companies can attach franking credits or imputation credits to dividends. These franking credits represent the tax paid by the company upon its pre-tax profits. One dollar of company tax paid generates one franking credit. Companies can attach any proportion of franking up to a maximum amount that is calculated from the prevailing company tax rate: for each dollar of dividend paid, the maximum level of franking is the company tax rate divided by (1 - company tax rate). At the current 30% rate, this works out at 0.30 of a credit per 70 cents of dividend, or 42.857 cents per dollar of dividend. The shareholders who are able to use them, apply these credits against their income tax bills at a rate of a dollar per credit, thereby effectively eliminating the double taxation of company profits.

United Kingdom

Dividends from UK companies are paid out of profits after corporation tax (Corporation tax is at 20% but decreases to 19% from 1 April 2017 - split periods have pro-rata applied). Dividend income is taxable on UK residents at the rate of 7.5% for basic rate payers, 32.5% for higher rate tax payers and 38.1% for additional rate payers. The income tax on dividend receipts is collected via personal tax returns. The

first £5,000 of dividend income is not taxed, however dividend income above that amount is subject to the rate that would have applied if the £5,000 exemption had not been given. UK limited companies do not pay tax on dividends received from their investments or from their subsidiaries. This is classed as "franked investment income".

India

In India, companies declaring or distributing dividend, are required to pay a Corporate Dividend Tax in addition to the tax levied on their income. The dividend received by the shareholders is then exempt in their hands.Dividend-paying firms in India fell from 24 per cent in 2001 to almost 16 per cent in 2009 before rising to 19 per cent in 2010. However, dividend income over and above Rs. 1,000,000 shall attract 10 per cent dividend tax in the hands of the shareholder with effect from April 2016.

Effect on stock price

After a stock goes ex-dividend (i.e. when a dividend has just been paid, so there is no anticipation of another imminent dividend payment), the stock price should drop.

To calculate the amount of the drop, the traditional method is to view the financial effects of the dividend from the perspective of the company. Since the company has paid say £x in dividends per share out of its cash account on the left hand side of the balance sheet, the equity account on the right side should decrease an equivalent amount. This means that a £x dividend should result in a £x drop in the share price.

A more accurate method of calculating this price is to look at the share price and dividend from the after-tax perspective of a share holder. The after-tax drop in the share price (or capital gain/loss) should be equivalent to the after-tax dividend. For example, if the tax of capital gains Tcg is 35%, and the tax on dividends Td is 15%, then a £1 dividend is equivalent to £0.85 of after-tax money. To get the same financial benefit from a capital loss, the after-tax capital loss value should equal £0.85. The pre-tax capital loss would be £0.85/(1-Tcg) = £0.85/(1-35%) = £0.85/65% = £1.30. In this case, a dividend of £1 has led to a larger drop in the share price of £1.30, because the tax rate on capital losses is higher than the dividend tax rate.

Finally, security analysis that does not take dividends into account may mute the decline in share price, for example in the case of a Price–earnings ratio target that does not back out cash; or amplify the decline, for example in the case of Trend following.

Criticism

Some believe that company profits are best re-invested in the company: research and development, capital investment, expansion, etc. Proponents of this view (and thus critics of dividends per se) suggest that an eagerness to return profits to shareholders may indicate the management having run out of good ideas for the future of the company. Some studies, however, have demonstrated that companies that pay dividends have higher earnings growth, suggesting that dividend payments may be evidence of confidence in earnings growth and sufficient profitability to fund future expansion.

Taxation of dividends is often used as justification for retaining earnings, or for performing a stock buyback, in which the company buys back stock, thereby increasing the value of the stock left outstanding.

When dividends are paid, individual shareholders in many countries suffer from double taxation of those dividends:

1. the company pays income tax to the government when it earns any income, and then
2. when the dividend is paid, the individual shareholder pays income tax on the dividend payment.

In many countries, the tax rate on dividend income is lower than for other forms of income to compensate for tax paid at the corporate level.

A capital gain should not be confused with a dividend. Generally, a capital gain occurs where a capital asset is sold for an amount greater than the amount of its cost at the time the investment was purchased. A dividend is a parsing out a share of the profits, and is taxed at the dividend tax rate. If there is an increase of value of stock, and a shareholder chooses to sell the stock, the shareholder will pay a tax on capital gains (often taxed at a lower rate than ordinary income). If a holder of the stock chooses to not participate in the buyback, the price of the holder's shares could rise (as well as it could fall), but the tax on these gains is delayed until the sale of the shares.

Certain types of specialized investment companies (such as a REIT in the U.S.) allow the shareholder to partially or fully avoid double taxation of dividends.

Shareholders in companies that pay little or no cash dividends can reap the benefit of the company's profits when they sell their shareholding, or when a company is wound down and all assets liquidated and distributed amongst shareholders. This, in effect,

delegates the dividend policy from the board to the individual shareholder. Payment of a dividend can increase the borrowing requirement, or leverage, of a company.

Other corporate entities

Cooperatives

Cooperative businesses may retain their earnings, or distribute part or all of them as dividends to their members. They distribute their dividends in proportion to their members' activity, instead of the value of members' shareholding. Therefore, co-op dividends are often treated as pre-tax expenses. In other words, local tax or accounting rules may treat a dividend as a form of customer rebate or a staff bonus to be deducted from turnover before profit (tax profit or operating profit) is calculated.

Consumers' cooperatives allocate dividends according to their members' trade with the co-op. For example, a credit union will pay a dividend to represent interest on a saver's deposit. A retail co-op store chain may return a percentage of a member's purchases from the co-op, in the form of cash, store credit, or equity. This type of dividend is sometimes known as a patronage dividend or **patronage refund**, as well as being informally named *divi* or *divvy*.

Producer cooperatives, such as worker cooperatives, allocate dividends according to their members' contribution, such as the hours they worked or their salary.

Trusts

In real estate investment trusts and royalty trusts, the distributions paid often will be consistently greater than the company earnings. This can be sustainable because the accounting earnings do not recognize any increasing value of real estate holdings and resource reserves. If there is no economic increase in the value of the company's assets then the excess distribution (or dividend) will be a return of capital and the book value of the company will have shrunk by an equal amount. This may result in capital gains which may be taxed differently from dividends representing distribution of earnings.

Mutuals

The distribution of profits by other forms of mutual organization also varies from that of joint-stock companies, though may not take the form of a dividend.

In the case of mutual insurance, for example, in the United States, a distribution of profits to holders of participating life policies is called a *dividend*. These profits are

generated by the investment returns of the insurer's general account, in which premiums are invested and from which claims are paid. The participating dividend may be used to decrease premiums, or to increase the cash value of the policy. Some life policies pay nonparticipating dividends. As a contrasting example, in the United Kingdom, the surrender value of a with-profits policy is increased by a *bonus*, which also serves the purpose of distributing profits. Life insurance dividends and bonuses, while typical of mutual insurance, are also paid by some joint stock insurers.

Insurance dividend payments are not restricted to life policies. For example, general insurer State Farm Mutual Automobile Insurance Company can distribute dividends to its vehicle insurance policyholders.

Dark pool

In finance, a **dark pool** (also ***black pool***) is a private forum for trading securities, derivatives, and other financial instruments. Liquidity on these marketsis called *dark pool liquidity*. The bulk of dark pool trades represent large trades by financial institutions that are offered away from public exchanges like the New York Stock Exchange and the NASDAQ, so that such trades remain confidential and outside the purview of the general investing public. The fragmentation of financial trading venues and electronic trading networks has allowed dark pools to be created, and they are normally accessed through crossing networks or directly among market participants via private contractual arrangements. Generally dark pools are not available to the public, but in some cases they may be accessed indirectly by retail investors and traders via retail brokers.

One of the main advantages for institutional investors in using dark pools is for buying or selling large blocks of securities without showing their hand to others and thus avoiding market impact as neither the size of the trade nor the identity are revealed until some time after the trade is filled. However, it also means that some market participants are disadvantaged as they cannot see the orders before they are executed; prices are agreed upon by participants in the dark pools, so the market is no longer transparent.

Three major types of dark pools exist:

1. independent companies set up to offer a unique differentiated basis for trading
2. broker-owned dark pools where clients of the broker interact, most commonly with other clients of the broker (possibly including its own proprietary traders) in conditions of anonymity
3. some public exchanges set up their own dark pools to allow their clients the benefits of anonymity and non-display of orders while offering an exchange "infrastructure"

Dark pools are heavily used in high-frequency trading which has also led to a conflict of interest for those operating dark pools due to payment for order flowand priority access. High frequency traders may obtain information from placing orders in one dark pool that can be used on other exchanges or dark pools. Depending on the precise way in which a "dark" pool operates and interacts with other venues, it may be considered, and indeed referred to by some vendors, as a "grey" pool.

These systems and strategies typically seek liquidity among open and closed trading venues, such as other alternative trading systems. Dark pools have grown in

importance since 2007, with dozens of different pools garnering a substantial portion of U.S. equity trading. Dark pools are of various types and can execute trades in multiple ways, such as through negotiation or automatically (e.g., midpoint crosses, staggered crosses, VWAP, etc.), throughout the day or at scheduled times.

Truly dark liquidity can be collected off-market in dark pools using FIX and FAST protocol based APIs. Dark pools are generally very similar to standard markets with similar order types, pricing rules and prioritization rules. However, the liquidity is deliberately not advertised—there is no market depth feed. Such markets have no need of an iceberg-order type. In addition, they prefer not to print the trades to any public data feed, or if legally required to do so, will do so with as large a delay as legally possible—all to reduce the market impact of any trade. Dark pools are often formed from brokers' order books and other off-market liquidity. When comparing pools, careful checks should be made as to how liquidity numbers were calculated—some venues count both sides of the trade, or even count liquidity that was posted but not filled.

Dark liquidity pools offer institutional investors many of the efficiencies associated with trading on the exchanges' public limit order books but without showing their actions to others. Dark liquidity pools avoid this risk because neither the price nor the identity of the trading company is displayed.

Dark pools are recorded to the national consolidated tape. However, they are recorded as over-the-counter transactions. Therefore, detailed information about the volumes and types of transactions is left to the crossing network to report to clients if they desire and are contractually obligated.

Dark pools allow funds to line up and move large blocks of equities without tipping their hands as to what they are up to. Modern electronic trading platforms and the lack of human interaction have reduced the time scale on market movements. This increased responsiveness of the price of an equity to market pressures has made it more difficult to move large blocks of stock without affecting the price. Thus dark pools may protect traders from market participants who use HFT in a predatory manner.

Dark pools are run by private brokerages which operate under fewer regulatory and public disclosure requirements than public exchanges. Tabb Groupestimates trading on the dark pools accounts for 32% of trades in 2012 vs 26% in 2008.

Iceberg orders

Some markets allow dark liquidity to be posted inside the existing limit order book alongside public liquidity, usually through the use of iceberg orders. Iceberg orders generally specify an additional "display quantity"—i.e., smaller than the overall order quantity. The order is queued along with other orders but only the display quantity is printed to the market depth. When the order reaches the front of its price queue, only the display quantity is filled before the order is automatically put at the back of the queue and must wait for its next chance to get a fill. Such orders will, therefore, get filled less quickly than the fully public equivalent, and they often carry an explicit cost penalty in the form of a larger execution cost charged by the market. Iceberg orders are not truly dark either, as the trade is usually visible after the fact in the market's public trade feed.

Price discovery

For an asset that can be only publicly traded, the standard price discovery process is generally assumed to ensure that at any given time the price is approximately "correct" or "fair". However, very few assets are in this category since most can be traded off market without printing the trade to a publicly accessible data source. As the proportion of the daily volume of the asset that is traded in such a hidden manner increases, the public price might still be considered fair. However, if public trading continues to decrease as hidden trading increases, it can be seen that the public price does not take into account all information about the asset (in particular, it does not take into account what was traded but hidden) and thus the public price may no longer be "fair".

Yet when trades executed in dark pools are incorporated into a post-trade transparency regime, investors have access to them as a part of a consolidated tape. This can aid price discovery because institutional investors who are reluctant to tip their hands in lit market still have to trade and thus a dark pool with post-trade transparency improves price discovery by increasing the amount of trading taking place.

Market impact

While it is safe to say that trading on a dark venue will reduce market impact, it is very unlikely to reduce it to zero. In particular the liquidity that crosses when there is a transaction has to come from somewhere—and at least some of it is likely to come from the public market, as automated broker systems intercept market-bound orders and instead cross them with the buyer/seller. This disappearance of the opposite side liquidity as it trades with the buyer/seller and leaves the market will cause impact. In addition, the order will slow down the market movement in the direction favorable to

the buyer/seller and speed it up in the unfavourable direction. The market impact of the hidden liquidity is greatest when all of the public liquidity has a chance to cross with the user and least when the user is able to cross with ONLY other hidden liquidity that is also not represented on the market. In other words, the user has a tradeoff: reduce the speed of execution by crossing with only dark liquidity or increase it and increase his market impact.

Adverse selection

One potential problem with crossing networks is the so-called winner's curse. Fulfillment of an order implies that the seller actually had more liquidity behind their order than the buyer. If the seller was making many small orders across a long period of time, this would not be relevant. However, when large volumes are being traded, it can be assumed that the other side—being even larger—has the power to cause market impact and thus push the price against the buyer. Paradoxically, the fulfillment of a large order is actually an indicator that the buyer would have benefitted from not placing the order to begin with—he or she would have been better off waiting for the seller's market impact, and then purchasing at the new price.

Another type of adverse selection is caused on a very short-term basis by the economics of dark pools versus displayed markets. If a buy-side institution adds liquidity in the open market, a prop desk at a bank may want to take that liquidity because they have a short-term need. The prop desk would have to pay an Exchange/ECN access fee to take the liquidity in the displayed market. On the other hand, if the buy-side institution were floating their order in the prop desk's broker dark pool, then the economics make it very favorable to the prop desk: They pay little or no access fee to access their own dark pool, and the parent broker gets tape revenue for printing the trade on an exchange. For this reason, it is recommended that when entities transact in smaller sizes and do not have short-term alpha, do not add liquidity to dark pools; rather, go to the open market where the short-term adverse selection is likely to be less severe.

Controversy

The use of dark pools for trading has also attracted controversy and regulatory action in part due to their opaque nature and conflicts of interest by the operator of the dark pool and the participants. A subject that was the focus of Flash Boys a non-fiction book published in 2014 by Michael Lewis about high-frequency trading (HFT) in financial markets.

Pipeline LLC controversy

Pipeline Trading Systems LLC, a company offering its services as a dark pool, contracted an affiliate that transacted the trades. In the Pipeline case, the firm attempted to provide a trading system that would protect investors from the open, public electronic marketplace. In that system, investors' orders would be made public on the consolidated tape as soon as they were announced, which traders characterized as "playing poker with your cards face up". The service Pipeline offered was to find counterparties for various trades in a private manner. The firm was subsequently investigated and sued by the U.S. Securities and Exchange Commission (SEC) for misleading its clients. Following its 2011 settlement of the SEC's claims against it, the firm rebranded itself as Aritas Securities LLC in January 2012.

Regulatory statements

In 2009 the U.S. Securities and Exchange Commission (SEC) announced that it was proposing measures to increase the transparency of dark pools, "so investors get a clearer view of stock prices and liquidity". These requirements would involve that information about investor interest in buying or selling stock be made available to the public, instead of to only the members of a dark pools. FINRAannounced in January 2013 that it will expand its monitoring of dark pools.

Barclays lawsuit

In June 2014 the U.S. state of New York filed a lawsuit against Barclays alleging the bank defrauded and deceived investors over its dark pool. A central allegation of the suit is that Barclays misrepresented the level of aggressive HFT activity in its dark pool to other clients. The state, in its complaint, said it was being assisted by former Barclays executives and it was seeking unspecified damages. The bank's shares dropped 5% on news of the lawsuit, prompting an announcement to the London Stock Exchange by the bank saying it was taking the allegations seriously, and was cooperating with the New York attorney general.In July 2014 Barclays filed a motion for the suit to be dismissed, saying there had been no fraud, no victims and no harm to anyone. The New York Attorney General's office said it was confident the motion would not succeed.In January 2016, Barclays agreed to pay a fine of $35 million to SEC and $70 million to NYAG for its dark pool wrongdoings.

UBS fine

In January 2015 the U.S. regulators imposed a fine on UBS Group AG’s dark pool for failing to follow rules designed to ensure stock trades are executed fairly. In ordering UBS to pay $14.4 million, including a $12 million fine that exceeds all prior penalties

against an alternative trading system, the Securities and Exchange Commission flagged a series of violations from 2008 to 2012. It said UBS let customers submit orders at prices denominated in increments smaller than a penny, something SEC rules prohibit because it can be used to get a better place in line when buying or selling stock. The ability to trade in sub-penny increments also wasn't widely disclosed to UBS customers, and was instead pitched secretly to market makers including high-frequency traders, according to the SEC.

ITG fine

In August 2015, ITG (and its affiliate AlterNet Securities) settled with SEC for $20.3 million due to operating a secret trading desk and misusing the confidential trading information of dark pool subscribers.

List of dark pools

Independent dark pools

- Chi-X Global
- Instinet
- Liquidnet
- NYFIX Millennium
- Posit/MatchNow from Investment Technology Group (ITG)
- State Street's BlockCross
- RiverCross Securities
- SmartPool
- TORA Crosspoint
- ETF One
- Codestreet Dealer Pool for Corporate Bonds

Broker-dealer-owned dark pools

- JPMorgan Chase Bank - JPMX
- Barclays Capital - LX Liquidity Cross
- BNP Paribas - BNP Paribas Internal eXchange (BIX)
- BNY ConvergEx Group (an affiliate of Bank of New York Mellon)
- Cantor Fitzgerald - Aqua Securities
- Citi - Citi Match, Citi Cross
- Credit Agricole Cheuvreux - BLINK
- Credit Suisse - CrossFinder
- Deutsche Bank Global Markets - DBA (Europe), SuperX ATS (U.S.)

- Fidelity Capital Markets
- GETCO - GETMatched
- Goldman Sachs SIGMA X
- Knight Capital Group - Knight Link, Knight Match
- Merrill Lynch - Instinct-X
- Morgan Stanley - MSPOOL
- Nomura - Nomura NX
- UBS Investment Bank - UBS ATS, UBS MTF, UBS PIN
- Societe Generale - ALPHA Y
- Daiwa - DRECT
- Wells Fargo Securities LLC - WELX - has since closed

Consortium-owned dark pools

- BIDS Trading - BIDS ATS
- LeveL ATS
- Luminex (Buyside Only)

Exchange-owned dark pools

- ASX Centre Point
- International Securities Exchange
- NYSE Euronext
- BATS Trading
- Turquoise
- Swiss Block
- Nordic@Mid

Dark pool aggregators

- Fidessa - Spotlight
- Bloomberg Tradebook
- Liquidnet LN Dark
- Credit Suisse Crossfinder Plus
- SuperX+ – Deutsche Bank
- Quod Financial ASOR
- Software AG - Apama
- ONEPIPE – Weeden & Co. & Pragma Financial
- Xasax Corporation
- Crossfire – Credit Agricole Cheuvreux

- Instinet - Nighthawk
- Bernstein - Shadow

Unit trust

A **unit trust** is a form of collective investment constituted under a trust deed. A unit trust pools investors money into a single fund, which is managed by a fund manager. Unit trusts offer access to a wide range of investments, and depending on the trust, it may invest in securities such as shares, bonds, gilts, and also properties, mortgages and cash equivalents. Those investing in the trust own "units" whose price is called the "net asset value" (NAV). The number of these units is not fixed and when more is invested in a unit trust (by investors opening accounts or adding to their accounts), more units are created.

In addition to the UK, trusts are found in Fiji, Ireland, the Isle of Man, Guernsey, Jersey, New Zealand, Australia, Kenya, Namibia, South Africa, Singapore, and Malaysia.

Different investment structures

There are a number of collective investment schemes — Unit Trust, Open-ended investment company, Mutual fund, Unit investment trust, Closed-end fund — with similar objectives and/or names, sometimes confused with each other. Variations include open-ended and closed-ended, business trust or management company/corporate structure, Actively managed or un-managed.

In the UK there are generally two types of open-ended, actively managed investment companies:

- Unit Trusts - which are organized as a business trust where the legal owner of the underlying assets is the trustee and the investors/unit-holders are beneficiaries. Unit Trusts have a "bid–offer spread", i.e. the investor pays more to buy units of the trust then they receive when they sell them—a difference that can vary and goes to the trust management as a profit.
- Open-ended investment company - which have a company, not trust, form. They also have a single price for purchase and sale of units (no bid–offer spread), making them similar to European SICAVsand U.S. mutual funds.

In Western Europe there are

- SICAV - (*société d'investissement à capital variable*) is an open-ended collective investment scheme common in Western Europe,

especially Luxembourg, Switzerland, Italy, Spain, Belgium, Malta, France and the Czech Republic.
- SICAF - (*Société d'Investissement À Capital Fixe*) is similar to a closed-end fund.

In the United States

- Mutual funds - in the form of open-ended, actively managed funds have traditionally been a very popular form of collective investment. Like Unit Trusts, their investors are unit-holders, and there are not a finite number of units in issue. Units could be increased or decreased depending on the net sales and repurchase by existing unit holders. Unlike Unit trusts they are limited liability companies where investors are like shareholders in a company. While open-ended mutual funds do not have a bid–offer spread, they may have "loads" (sale charges) and other fees paid to fund management.
- Closed-end funds - a collective investment model based on issuing a fixed number of shares which are not redeemable from the fund. Even more different from a unit trust, investors own shares rather than units. They buy and sell the shares on the stock market, rather than from the fund itself. New shares are not created by managers to meet demand from investors.
- Exchange-traded funds (ETFs) - also traded in the market and not bought and redeemed from the fund, but unlike closed-end funds the price is not completely determined by the valuation of the market, and trades in a narrow range very close to its net asset value, because the structure of ETFs allows major market participants to redeem shares of an ETF for a "basket" of the fund's underlying assets. (More than US$2 trillion were invested in ETFs in the United States between when they were introduced in 1993 and 2015.)
- Unit investment trust - an exchange-traded fund with a fixed (unmanaged) portfolio of securities and a fixed life-span before it liquidates and distributes its net asset value as proceeds to the unit-holders. Despite its similar name and being a trust, it differs from a unit trust in being closed-end, un-managed, and having a termination date.

Structure

- The fund manager runs the trust for profit.
- The trustees ensure the fund manager keeps to the fund's *investment objective* and safeguards the trust assets.
- The unitholders have the rights to the trust assets.

- The distributors allow the unitholders to transact in the fund manager's unit trusts
- The registrars are usually engaged by the fund manager and generally acts as a middleman between the fund manager and various other stakeholders.

Open-ended

Unit trusts are open-ended; the fund is equitably divided into units which vary in price in direct proportion to the variation in value of the fund's *net asset value*. Each time money is invested, new units are created to match the prevailing unit buying price; each time units are redeemed the assets sold match the prevailing unit selling price. In this way there is no supply or demand created for units and they remain a direct reflection of the underlying assets. Unit trust trades do not have any commission.

Bid–offer spread

The fund manager makes a profit in the difference between the purchase price of the unit or **offer** price and the sale value of units or the **bid** price. This difference is known as the bid–offer spread. The bid–offer spread will vary depending on the type of assets held and can be anything from a few basis points on very liquid assets like UK/US government bonds, to 5% or more on assets that are harder to buy and sell such as property. The trust deed often gives the manager the right to vary the bid–offer spread to reflect market conditions, with the purpose of allowing the manager to control liquidity. In some jurisdictions the bid–offer spread is referred to as the "bid–ask spread".

To cover the cost of running the investment portfolio the manager will collect an annual management charge or AMC. Typically this is 1 to 2 percent of the market value of the fund. In addition to the annual management charge, costs incurred in managing and dealing the underlying assets will often be borne by the trust. If this is the case, the provider will extract revenue equal to the AMC without incurring any expenses managing the fund. This makes the charges in such vehicles lack transparency.

Mechanics

In a unit trust, units are managed within what is known as the "Managers Box". The Box Manager of the fund will make a decision at each valuation point whether or not to Create (add) or to Liquidate (Remove) units based on the final net sales and redemptions prior to the next valuation point where the Fund is priced on a "Forward Basis", or at the actual valuation point where the fund is priced on an Historic basis. Forward pricing is the most common.

The underlying value of the assets is always directly represented by the total number of units issued multiplied by the unit price less the transaction or management fee charged and any other associated costs. Each fund has a specified *investment objective* to determine the management aims and limitations.

A unit is created when money is invested and cancelled when money is divested. The *creation price* and *cancellation price* do not always correspond with the *offer* and *bid* price. Subject to regulatory rules these prices are allowed to differ and relate to the highs and lows of the asset value throughout the day. The trading profits based on the difference between these two sets of prices are known as the box profits.

OEIC conversion

In the UK many unit trust managers have converted to open-ended investment companies (OEICs) in recent years. OEICs normally have a single price for purchase and sale, although recent regulatory change now permits dual pricing too, in line with unit trusts.

The motivation for conversion is often cited as a simplification and precursor to offering funds Europe-wide under EU rules.

More cynical observers may have noted that there is increased latitude to hide charges in the OEIC Dilution Adjustment (more commonly referred to as "Swinging Single Price") whilst maintaining the veneer of simplification.

History

The first unit trust was launched in the UK in 1931 by M&G under the inspiration of Ian Fairbairn. The rationale behind the launch was to emulate the comparative robustness of US mutual fundsthrough the 1929 Wall Street crash. The first trust called the 'First British Fixed Trust' held the shares of 24 leading companies in a fixed portfolio that was not changed for the fixed lifespan of 20 years. The trust was relaunched as the M&G General Trust and later renamed as the Blue Chip Fund

By 1939 there were around 100 trusts in the UK, managing funds in the region of £80 million.

Ways to invest

In the UK Units can be bought direct from the fund manager, held through a nominee account or through an ISA (individual savings account). It is also possible to invest via fund platforms.

From the 1 January 1987 to 5 April 1999 it was also possible to invest via a PEP (personal equity plan) however these were discontinued and all PEP accounts automatically became stocks and shares ISAs on 6 April 2008.

Mutual fund

A **mutual fund** is a professionally managed investment fund that pools money from many investors to purchase securities. These investors may be retail or institutional in nature.

Mutual funds have advantages and disadvantages compared to direct investing in individual securities. The primary advantages of mutual funds are that they provide economies of scale, a higher level of diversification, they provide liquidity, and they are managed by professional investors. On the negative side, investors in a mutual fund must pay various fees and expenses.

Primary structures of mutual funds include open-end funds, unit investment trusts, and closed-end funds. Exchange-traded funds (ETFs) are open-end funds or unit investment trusts that trade on an exchange. Mutual funds are also classified by their principal investments as money market funds, bond or fixed income funds, stock or equity funds, hybrid funds or other. Funds may also be categorized as index funds, which are passively managed funds that match the performance of an index, or actively managed funds. Hedge funds are not mutual funds; hedge funds cannot be sold to the general public and are subject to different government regulations.

The first modern investment funds (the precursor of today's mutual funds) were established in the Dutch Republic. In response to the financial crisis of 1772–1773, Amsterdam-based businessman Abraham (or Adriaan) van Ketwich formed a trust named Eendragt Maakt Magt ("unity creates strength"). His aim was to provide small investors with an opportunity to diversify.

Mutual funds were introduced to the United States in the 1890s. Early U.S. funds were generally closed-end funds with a fixed number of shares that often traded at prices above the portfolio net asset value. The first open-end mutual fund with redeemable shares was established on March 21, 1924 as the Massachusetts Investors Trust. (It is still in existence today and is now managed by MFS Investment Management.)

In the United States, closed-end funds remained more popular than open-end funds throughout the 1920s. In 1929, open-end funds accounted for only 5% of the industry's $27 billion in total assets.

After the Wall Street Crash of 1929, the U.S. Congress passed a series of acts regulating the securities markets in general and mutual funds in particular.

- The Securities Act of 1933 requires that all investments sold to the public, including mutual funds, be registered with the SEC and that they provide prospective investors with a prospectus that discloses essential facts about the investment.
- The Securities and Exchange Act of 1934 requires that issuers of securities, including mutual funds, report regularly to their investors; this act also created the Securities and Exchange Commission, which is the principal regulator of mutual funds.
- The Revenue Act of 1936 established guidelines for the taxation of mutual funds.
- The Investment Company Act of 1940 requires companies that engage primarily in investing, reinvesting, and trading in securities, and whose own securities are offered to the investing publicto disclose their financial condition and investment policies to investors when stock is initially sold and, subsequently, on a regular basis.

These new regulations encouraged the development of open-end mutual funds (as opposed to closed-end funds.)

Growth in the U.S. mutual fund industry remained limited until the 1950s, when confidence in the stock market returned. By 1970, there were approximately 360 funds with $48 billion in assets.

The introduction of money market funds in the high interest rate environment of the late 1970s boosted industry growth dramatically. The first retail index fund, First Index Investment Trust, was formed in 1976 by The Vanguard Group, headed by John Bogle; it is now called the "Vanguard 500 Index Fund" and is one of the world's largest mutual funds. Fund industry growth continued into the 1980s and 1990s.

According to Pozen and Hamacher, growth was the result of three factors:

1. A bull market for both stocks and bonds,
2. New product introductions (including funds based on municipal bonds, various industry sectors, international funds, and target date funds) and
3. Wider distribution of fund shares, including through employee-directed retirement accounts such as 401(k) and other defined contribution plans and individual retirement accounts (IRAs.) Among the new distribution channels were retirement plans. Mutual funds are now the preferred investment option in certain types of fast-growing retirement plans,

specifically in 401(k) and other defined contribution plans and in individual retirement accounts (IRAs), all of which surged in popularity in the 1980s.

In 2003, the mutual fund industry was involved in a scandal involving unequal treatment of fund shareholders. Some fund management companies allowed favored investors to engage in late trading, which is illegal, or market timing, which is a practice prohibited by fund policy. The scandal was initially discovered by former New York Attorney General Eliot Spitzer and led to a significant increase in regulation.

Total mutual fund assets fell in 2008 as a result of the financial crisis of 2007–2008.

Mutual funds today

At the end of 2016, mutual fund assets worldwide were $40.4 trillion, according to the Investment Company Institute. The countries with the largest mutual fund industries are:

1. United States: $18.9 trillion
2. Luxembourg: $3.9 trillion
3. Ireland: $2.2 trillion
4. Germany: $1.9 trillion
5. France: $1.9 trillion
6. Australia: $1.6 trillion
7. United Kingdom: $1.5 trillion
8. Japan: $1.5 trillion
9. China: $1.3 trillion
10. Brazil: $1.1 trillion

In the United States, mutual funds play an important role in U.S. household finances. At the end of 2016, 22% of household financial assets were held in mutual funds. Their role in retirement savings was even more significant, since mutual funds accounted for roughly half of the assets in individual retirement accounts, 401(k)s and other similar retirement plans. In total, mutual funds are large investors in stocks and bonds.

Luxembourg and Ireland are the primary jurisdictions for the registration of UCITS funds. These funds may be sold throughout the European Union and in other countries that have adopted mutual recognition regimes.

Advantages and disadvantages to investors

Mutual funds have advantages and disadvantages compared to investing directly in individual securities:

Advantages

- Increased diversification: A fund diversifies holding many securities; this diversification decreases risk.
- Daily liquidity: Shareholders of open-end funds and unit investment trusts may sell their holdings back to the fund at regular intervals at a price equal to the net asset value of the fund's holdings. Most funds allow investors to redeem in this way at the close of every trading day.
- Professional investment management: Open-and closed-end funds hire portfolio managers to supervise the fund's investments.
- Ability to participate in investments that may be available only to larger investors. For example, individual investors often find it difficult to invest directly in foreign markets.
- Service and convenience: Funds often provide services such as check writing.
- Government oversight: Mutual funds are regulated by a governmental body
- Transparency and ease of comparison: All mutual funds are required to report the same information to investors, which makes them easier to compare

Disadvantages

Mutual funds have disadvantages as well, which include:

- Fees
- Less control over timing of recognition of gains
- Less predictable income
- No opportunity to customize

Regulation and operation

United States

In the United States, the principal laws governing mutual funds are:

- The Securities Act of 1933 requires that all investments sold to the public, including mutual funds, be registered with the SEC and that they provide

potential investors with a prospectus that discloses essential facts about the investment.

- The Securities and Exchange Act of 1934 requires that issuers of securities, including mutual funds, report regularly to their investors; this act also created the Securities and Exchange Commission, which is the principal regulator of mutual funds.
- The Revenue Act of 1936 established guidelines for the taxation of mutual funds. Mutual funds are not taxed on their income and profits if they comply with certain requirements under the U.S. Internal Revenue Code; instead, the taxable income is passed through to the investors in the fund. Funds are required by the IRS to diversify their investments, limit ownership of voting securities, distribute most of their income (dividends, interest, and capital gains net of losses) to their investors annually, and earn most of the income by investing in securities and currencies. The characterization of a fund's income is unchanged when it is paid to shareholders. For example, when a mutual fund distributes dividend income to its shareholders, fund investors will report the distribution as dividend income on their tax return. As a result, mutual funds are often called "pass-through" vehicles, because they simply pass on income and related tax liabilities to their investors.
- The Investment Company Act of 1940 establishes rules specifically governing mutual funds. The focus of this Act is on disclosure to the investing public of information about the fund and its investment objectives, as well as on investment company structure and operations.
- The Investment Advisers Act of 1940 establishes rules governing the investment advisers. With certain exceptions, this Act requires that firms or sole practitioners compensated for advising others about securities investments must register with the SEC and conform to regulations designed to protect investors.
- The National Securities Markets Improvement Act of 1996 gave rulemaking authority to the federal government, preempting state regulators. However, states continue to have authority to investigate and prosecute fraud involving mutual funds.

Open-end and closed-end funds are overseen by a board of directors, if organized as a corporation, or by a board of trustees, if organized as a trust. The Board must ensure that the fund is managed in the interests of the fund's investors. The board hires the fund manager and other service providers to the fund. The fund sponsors trades (buys and sells) the fund's investments in accordance with the fund's investment objective.

Funds that are managed by the same company under the same brand are known as a fund family or fund complex.

The sponsor or fund management company, often referred to as the fund manager, trades (buys and sells) the fund's investments in accordance with the fund's investment objective. A fund manager must be a registered investment adviser. Funds that are managed by the same company under the same brand are known as a fund family or fund complex.

European Union

In the European Union, funds are governed by laws and regulations established by their home country. However, the European Union has established a mutual recognition regime that allows funds regulated in one country to be sold in all other countries in the European Union, but only if they comply with certain requirements. The directive establishing this regime is the Undertakings for Collective Investment in Transferable Securities Directive 2009, and funds that comply with its requirements are known as UCITS funds.

Canada

Regulation of mutual funds in Canada is primarily governed by National Instrument 81-102 "Mutual Funds." NI 81-102 is implemented separately in each province or territory. The Canadian Securities Administrator works to harmonize regulation across Canada.

Hong Kong

in the Hong Kong market: mutual funds are regulated by two authorities.

- The Securities and Futures Commission (SFC) develops rules that apply to all mutual funds marketed in Hong Kong.
- The Mandatory Provident Funds Schemes Authority (MPFA) rules apply only to mutual funds that are marketed for use in the retirement accounts of Hong Kong residents. The MPFA rules are generally more restrictive than the SFC rules.

Taiwan

In Taiwan, mutual funds are regulated by the Financial Supervisory Commission (FSC).

Fund structures

There are three primary structures of mutual funds: open-end funds, unit investment trusts, and closed-end funds. Exchange-traded funds (ETFs) are open-end funds or unit investment trusts that trade on an exchange.

Open-end funds

Open-end mutual funds must be willing to buy back ("redeem") their shares from their investors at the net asset value (NAV) computed that day based upon the prices of the securities owned by the fund. In the United States, open-end funds must be willing to buy back shares at the end of every business day. In other jurisdictions, open-funds may only be required to buy back shares at longer intervals. For example, UCITS funds in Europe are only required to accept redemptions twice each month (though most UCITS accept redemptions daily).

Most open-end funds also sell shares to the public every business day; these shares are priced at NAV.

Most mutual funds are open-end funds. In the United States at the end of 2016, there were 8,066 open-end mutual funds with combined assets of $16.3 trillion, accounting for 86% of the U.S. industry.

Closed-end funds

Closed-end funds generally issue shares to the public only once, when they are created through an initial public offering. Their shares are then listed for trading on a stock exchange. Investors who want to sell their shares must sell their shares to another investor in the market; they cannot sell their shares back to the fund. The price that investors receive for their shares may be significantly different from NAV; it may be at a "premium" to NAV (i.e., higher than NAV) or, more commonly, at a "discount" to NAV (i.e., lower than NAV).

In the United States at the end of 2016, there were 530 closed-end mutual funds with combined assets of $0.3 trillion, accounting for 1% of the U.S. industry.

Unit investment trusts

Unit investment trusts (UITs) are issued to the public only once, when they are created. UITs generally have a limited life span, established at creation. Investors can redeem shares directly with the fund at any time (similar to an open-end fund) or wait

to redeem them upon the trust's termination. Less commonly, they can sell their shares in the open market.

Unlike other types of mutual funds, unit investment trusts do not have a professional investment manager. Their portfolio of securities is established at the creation of the UIT.

In the United States at the end of 2016, there were 5,103 UITs with combined assets of less than $0.1 trillion.

Exchange-traded funds

Exchange-traded funds (ETFs) are structured as open-end investment companies or UITs. ETFs combine characteristics of both closed-end funds and open-end funds. ETFs are traded throughout the day on a stock exchange. An arbitrage mechanism is used to keep the trading price close to net asset value of the ETF holdings.

In the United States at the end of 2016, there were 1,716 ETFs in the United States with combined assets of $2.5 trillion, accounting for 13% of the U.S. industry.

Classification of funds by types of underlying investments

Mutual funds are normally classified by their principal investments, as described in the prospectus and investment objective. The four main categories of funds are money market funds, bond or fixed income funds, stock or equity funds, and hybrid funds. Within these categories, funds may be subclassified by investment objective, investment approach or specific focus.

The types of securities that a particular fund may invest in are set forth in the fund's prospectus, a legal document which describes the fund's investment objective, investment approach and permitted investments. The investment objective describes the type of income that the fund seeks. For example, a capital appreciation fund generally looks to earn most of its returns from increases in the prices of the securities it holds, rather than from dividend or interest income. The investment approach describes the criteria that the fund manager uses to select investments for the fund.

Bond, stock, and hybrid funds may be classified as either index (or passively-managed) funds or actively managed funds.

Money market funds

Money market funds invest in money market instruments, which are fixed income securities with a very short time to maturity and high credit quality. Investors often use money market funds as a substitute for bank savings accounts, though money market funds are not insured by the government, unlike bank savings accounts.

In the United States, money market funds sold to retail investors and those investing in government securities may maintain a stable net asset value of $1 per share, when they comply with certain conditions. (Other money market funds must compute a net asset value based on the value of the securities held in the funds.)

In the United States at the end of 2016, assets in money market funds were $2.7 trillion, representing 14% of the industry.

Bond funds

Bond funds invest in fixed income or debt securities. Bond funds can be sub-classified according to:

- The specific types of bonds owned (such as high-yield or junk bonds, investment-grade corporate bonds, government bonds or municipal bonds)
- The maturity of the bonds held (i.e., short-, intermediate- or long-term)
- The country of issuance of the bonds (such as U.S., emerging market or global)
- The tax treatment of the interest received (taxable or tax-exempt)

In the United States at the end of 2016, assets in bond funds were $4.1 trillion, representing 22% of the industry.

Stock funds

Stock, or equity, funds invest in common stocks. Stock funds may focus on a particular area of the stock market, such as

- Stocks from only a certain industry
- Stocks from a specified country or region
- Stocks of companies experiencing strong *growth*
- Stocks that the portfolio managers deem to be a good *value* relative to the value of the company's business
- Stocks paying high dividends that provide *income*
- Stocks within a certain market capitalization range

In the United States at the end of 2016, assets in Stock funds were $10.6 trillion, representing 56% of the industry.

Hybrid funds

Hybrid funds invest in both bonds and stocks or in convertible securities. Balanced funds, asset allocation funds, target date or target risk funds, and lifecycle or lifestyle funds are all types of hybrid funds.

Hybrid funds may be structured as funds of funds, meaning that they invest by buying shares in other mutual funds that invest in securities. Many funds of funds invest in affiliated funds (meaning mutual funds managed by the same fund sponsor), although some invest in unaffiliated funds (i.e., managed by other fund sponsors) or some combination of the two.

In the United States at the end of 2016, assets in hybrid funds were $1.4 trillion, representing 7% of the industry.

Other funds

Funds may invest in commodities or other investments.

Expenses

Investors in a mutual fund pay the fund's expenses. Some of these expenses reduce the value of an investor's account; others are paid by the fund and reduce net asset value.

These expenses fall into five categories:

Management fee

The management fee is paid by the fund to the management company or sponsor that organizes the fund, provides the portfolio management or investment advisory services and normally lends its brand to the fund. The fund manager may also provide other administrative services. The management fee often has breakpoints, which means that it declines as assets (in either the specific fund or in the fund family as a whole) increase. The fund's board reviews the management fee annually. Fund shareholders must vote on any proposed increase, but the fund manager or sponsor can agree to waive some or all of the management fee in order to lower the fund's expense ratio.

Index funds generally charge a lower management fee than actively-managed funds.

Distribution charges

Distribution charges pay for marketing, distribution of the fund's shares as well as services to investors. There are three types of distribution charges.

- Front-end load or sales charge. A front-end load or sales charge is a commission paid to a broker by a mutual fund when shares are purchased. It is expressed as a percentage of the total amount invested or the "public offering price", which equals the net asset value plus the front-end load per share. The front-end load often declines as the amount invested increases, through breakpoints. The front-end load is paid by the investor; it is deducted from the amount invested.
- Back-end load. Some funds have a back-end load, which is paid by the investor when shares are redeemed. If the back-end load declines the longer the investor holds shares, it is called a contingent deferred sales charges (CDSC). Like the front-end load, the back-end load is paid by the investor; it is deducted from the redemption proceeds.
- Distribution and services fee. Some funds charge an annual fee to compensate the distributor of fund shares for providing ongoing services to fund shareholders. In the United States, this fee is sometimes called a 12b-1 fee, after the SEC rule authorizing it. The distribution and services fee is paid by the fund and reduces net asset value.

Distribution charges generally vary for each share class.

Securities transaction fees incurred by the fund

A mutual fund pays expenses related to buying or selling the securities in its portfolio. These expenses may include brokerage commissions. These costs are normally positively correlated with turnover.

Shareholder transaction fees

Shareholders may be required to pay fees for certain transactions, such as buying or selling shares of the fund. For example, a fund may charge a flat fee for maintaining an individual retirement account for an investor. Some funds charge redemption fees when an investor sells fund shares shortly after buying them (usually defined as within 30, 60 or 90 days of purchase); redemption fees are computed as a percentage of the sale amount. Shareholder transaction fees are not part of the expense ratio.

Fund services charges

A mutual fund may pay for other services including:

- Board of directors or trustees fees and expenses
- Custody fee: paid to a custodian bank for holding the fund's portfolio in safekeeping and collecting income owed on the securities
- Fund administration fee: for overseeing all administrative affairs such as preparing financial statements and shareholder reports, SEC filings, monitoring compliance, computing total returns and other performance information, preparing/filing tax returns and all expenses of maintaining compliance with state blue sky laws
- Fund accounting fee: for performing investment or securities accounting services and computing the net asset value (usually every day the New York Stock Exchange is open)
- Professional services fees: legal and auditing fees
- Registration fees: paid to the SEC and state securities regulators
- Shareholder communications expenses: printing and mailing required documents to shareholders such as shareholder reports and prospectuses
- Transfer agent service fees and expenses: for keeping shareholder records, providing statements and tax forms to investors and providing telephone, internet and or other investor support and servicing
- Other/miscellaneous fees

The fund manager or sponsor may agree to subsidize some of these charges.

Expense ratio

The expense ratio equals recurring fees and expenses charged to the fund during the year divided by average net assets. The management fee and fund services charges are ordinarily included in the expense ratio; front-end and back-end loads, securities transaction fees and shareholder transaction fees are normally excluded.

To facilitate comparisons of expenses, regulators generally require that funds use the same formula to compute the expense ratio and publish the results.

No-load fund

In the United States, a fund that calls itself "no-load" cannot charge a front-end load or back-end load under any circumstances and cannot charge a distribution and services fee greater than 0.25% of fund assets

Controversy regarding fees and expenses

Critics of the fund industry argue that fund expenses are too high. They believe that the market for mutual funds is not competitive and that there are many hidden fees, so that it is difficult for investors to reduce the fees that they pay. They argue that the most effective way for investors to raise the returns they earn from mutual funds is to invest in funds with low expense ratios.

Fund managers counter that fees are determined by a highly competitive market and, therefore, reflect the value that investors attribute to the service provided. They also note that fees are clearly disclosed.

Market capitalization equals the number of a company's shares outstanding multiplied by the market price of the stock. Market capitalization is an indication of the size of a company. Typical ranges of market capitalizations are:

- Mega cap - companies worth $200 billion or more
- Big/large cap - companies worth between $10 billion and $200 billion
- Mid cap - companies worth between $2 billion and $10 billion
- Small cap - companies worth between $300 million and $2 billion
- Micro cap - companies worth between $50 million and $300 million
- Nano cap - companies worth less than $50 million

A fund's net asset value (NAV) equals the current market value of a fund's holdings minus the fund's liabilities. (This figure may also be referred to as the fund's "net assets"). It is usually expressed as a per-share amount, computed by dividing net assets by the number of fund shares outstanding. Funds must compute their net asset value according to the rules set forth in their prospectuses; most compute their NAV at the end of each business day.

Valuing the securities held in a fund's portfolio is often the most difficult part of calculating net asset value. The fund's board typically oversees security valuation.

Share classes

A single mutual fund may give investors a choice of different combinations of front-end loads, back-end loads and distribution and services fee, by offering several different types of shares, known as share classes. All of them invest in the same

portfolio of securities, but each has different expenses and, therefore, a different net asset value and different performance results. Some of these share classes may be available only to certain types of investors.

Typical share classes for funds sold through brokers or other intermediaries in the United States are:

- **Class A** shares usually charge a front-end sales load together with a small distribution and services fee.
- **Class B** shares usually do not have a front-end sales load; rather, they have a high contingent deferred sales charge (CDSC) that gradually declines over several years, combined with a high 12b-1 fee. Class B shares usually convert automatically to Class A shares after they have been held for a certain period.
- **Class C** shares usually have a high distribution and services fee and a modest contingent deferred sales charge that is discontinued after one or two years. Class C shares usually do not convert to another class. They are often called "level load" shares.
- **Class I** are usually subject to very high minimum investment requirements and are, therefore, known as "institutional" shares. They are no-load shares.
- **Class R** are usually for use in retirement plans such as 401(k) plans. They typically do not charge loads, but do charge a small distribution and services fee.
- **class Z** This class is available to employees of the fund family that offers and manages the fund. Shares of the Z class may be offered to employees for purchase or as part of their compensation.
- **ADVISOR CLASS** This type is designated for funds that are available only through an investment advisor. There will generally not be an upfront load charge. However, there may be 12b-1 fees, which that lessen the total return.

No-load funds in the United States often have two classes of shares:

- **Class I** shares do not charge a distribution and services fee
- **Class N** shares charge a distribution and services fee of no more than 0.25% of fund assets

Neither class of shares typically charges a front-end or back-end load

Turnover

Turnover is a measure of the volume of a fund's securities trading. It is expressed as a percentage of average market value of the portfolio's long-term securities. Turnover is the lesser of a fund's purchases or sales during a given year divided by average long-term securities market value for the same period. If the period is less than a year, turnover is generally annualized.

References

1. Goetzmann, William N.; Rouwenhorst, K. Geert (2005). *The Origins of Value: The Financial Innovations that Created Modern Capital Markets*. (Oxford University Press, ISBN 978-0195175714))
2. K. Geert Rouwenhorst (December 12, 2004), "The Origins of Mutual Funds", Yale ICF Working Paper No. 04-48.
3. *Fink, Matthew P. (2008). The Rise of Mutual Funds. Oxford University Press.*
4. Pozen and Hamacher (2015), pp. 10–14.
5. *"2017 Investment Company Factbook". Investment Company Institute. 2017.*
6. *2017 Investment Company Fact Book. Investment Company Institute.*
7. *Pozen, Robert; Hamacher, Theresa (2015). The Fund Industry: How Your Money is Managed (2nd ed.). Hoboken, NJ: Wiley Finance. pp. 4–5. ISBN 9781118929940.*
8. *Pozen, Robert; Hamacher, Theresa (2015). The Fund Industry: How Your Money is Managed (2nd ed.). Hoboken, NJ: Wiley Finance. pp. 7–8. ISBN 9781118929940.*
9. *"26 U.S. Code §& 851 – Definition of regulated investment company". Legal Information Institute. Cornell Law School.*
10.
11. *"SEC.gov | The Laws That Govern the Securities Industry". www.sec.gov. Retrieved 2018-01-20.*
12. *"National Instrument 81-102 -- Mutual Funds" (PDF). Fasken Martineau.*
13. *"Canadian Securities Administrator: Overview".*
14. *"Investment products | Securities and Futures Commission".*
15. *"MPFA".*
16. *"Financial Supervisory Commission".*
17. *"2017 Investment Company Factbook". Investment Company Institute.*
18. *"2017 Investment Company Factbook". Investment Company Institute.*
19. *"Final Rule: Registration Form Used by Open-End Management Investment Companies: Sample Form and instructions". U.S. Securities and Exchange Commission (SEC). March 23, 1998.*
20. "Bad Samaritans: The Myth of Free Trade and the Secret History of Capitalism", Ha-Joon Chang, Bloomsbury Press, ISBN 978-1596915985
21. *Theory of Value*, by Gérard Debreu
22. Hayek cited. Petsoulas, Christina. *Hayek's Liberalism and Its Origins: His Idea of Spontaneous Order and the Scottish Enlightenment*. Routledge. 2001. p. 2
23. *Smith, Adam (1776). "2". Wealth of Nations. **1**. London: W. Strahan and T. Cadell.*

24. *Winner-Take-All Politics: How Washington Made the Rich Richer – and Turned Its Back on the Middle Class* by Jacob S. Hacker and Paul Pierson, Simon & Schuster 2010, p. 55
25. *Hunt, Michael H (2004). The World Transformed: 1945 To The Present. Boston: Bedford/St. Martin's: Oxford University Press. p. 313.*
26. Ayal, Eliezer B. and Karras, Georgios. "Components of Economic Freedom and Growth."*Journal of Developing Areas*, Vol. 32, No. 3, Spring 1998, pp. 327–38. Publisher: Western Illinois University.
27. COLE, Julio H. and LAWSON, Robert A. *Handling Economic Freedom in Growth Regressions: Suggestions for Clarification.* Econ Journal Watch, Volume 4, Number 1, January 2007, pp. 71–78.
28. DE HAAN, Jacob and STURM, Jan-Egbert. *How to Handle Economic Freedom: Reply to Lawson.* Econ Journal Watch, Volume 3, Number 3, September 2006, pp. 407–411.
29. *O'Sullivan, Arthur; Sheffrin, Steven M. (2003). Economics: Principles in Action. Upper Saddle River, New Jersey 07458: Pearson Prentice Hall. p. 273. ISBN 0-13-063085-3.*
30. Michael Simkovic, "The Effect of Enhanced Disclosure on Open Market Stock Repurchases", 6 Berkeley Bus. L.J. 96 (2009).
31. Amedeo De Cesari, Susanne Espenlaub, Arif Khurshed and Michael Simkovic, "The Effects of Ownership and Stock Liquidity on the Timing of Repurchase Transactions", 2010
32. *"dividend". Online Etymology Dictionary. Douglas Harper. 2001. Retrieved November 9,2006.*
33. Freedman, Roy S.: *Introduction to Financial Technology*. (Academic Press, 2006, ISBN 0123704782)
34. DK Publishing (Dorling Kindersley): *The Business Book (Big Ideas Simply Explained)*. (DK Publishing, 2014, ISBN 1465415858)
35. Huston, Jeffrey L.: *The Declaration of Dependence: Dividends in the Twenty-First Century*. (Archway Publishing, 2015, ISBN 1480825042)
36. *Chambers, Clem (14 July 2006). "Who needs stock exchanges?". MondoVisione.com. Retrieved 14 May 2017.*
37. *"Public offering Kinder Morgan Management, LLC".*
38. U.S. Securities and Exchange Commission Archived January 3, 2011, at the Wayback Machine.
39. *"KINDER MORGAN MANAGEMENT LLC - Securities Registration Statement (S-1/A) OFFERING:". sec.edgar-online.com.*